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Address.

THE ESOPHAGUS.*

CICATRICAL STRICTURE THEREOF; ITS TREATMENT.

CHAIRMAN'S ADDRESS.

BY W. J. MAYO, M.D.

SURGEON TO ST. MARY'S HOSPITAL.
ROCHESTER, MINN.

Esophageal obstruction is a subject which must command the attention of every thoughtful surgeon. The inaccessible situation of the gullet, its relation to important structures, and the difficulty attending manipulations within its narrow lumen, all tend to place it among the surgical problems which are difficult of solution. The cases are sufficiently rare to render an individual experience incomplete, and yet are frequent enough to stimulate our best endeavor for their relief.

Koening makes a very practical classification of esophageal obstructions into:

1. Those located within the esophagus, such as inflammatory spasmodic or cicatrical strictures, foreign bodies, tumors and diverticula.

2. Pressure obstructions located without the esophagus, especially tumors involving the thyroid body, tracheal and mediastinal glands, or aneurysms of the arch of the aorta. Abscess from Pott's disease may also be the cause of pressure obstruction.

It is to a variety of the first group that I wish to call your attention at this time.

ETIOLOGY AND GENERAL CHARACTER.

Cicatricial stenosis of the esophagus is the result of the healing of an ulceration. The latter is produced by a traumatism, such as the swallowing of caustic alkali, acids or hot fluids; occasionally by a wound, or may be due to the prolonged lodgment of a foreign body. The most common cause, and especially so in children, is the accidental swallowing of concentrated lye.

In adults carbolic acid, ammonia, etc., are not infrequently taken, but the immediate mortality from the poisonous effects of the substance swallowed reduces the number who live to develop cicatrix to a small proportion.

The breaking down of a syphilitic gumma may leave an ulceration, and cases of stricture having its origin in this manner have been reported by Lubinski. Senn says that syphilis may cause a fibrous stricture of any portion of the alimentary canal and states that it is not ulcerative in character.

Tubercular ulceration of the esophagus is usually secondary to the swallowing of infected sputum. Flexner reports 19 cases and Cone 28 of this variety. None of these cases healed to such an extent as to cause stricture. Primary tuberculosis of the gullet is very rare; however, it occurs and may be the cause of stenosis. Zenker reports such a case. Poncet cites a case of obstruction due to the ulceration attending actinomycosis; no attempt at healing was noted, the interference being mechanical. Fibrous strictures of the esophagus without ulceration have been variously described as idiopathic, syphilitic, gouty, rheumatic or due to chronic esophagitis. Audry records two such cases supposed to be cancerous, which after death proved to be due to hyperplasia of the muscular coat. Ingals reports several instances occurring in one family. Rumpel cites a case of fusiform dilatation of the esophagus, due as he believes to a spasmodic contraction of the thickened muscular coat at the lower end of the gullet and collects 20 cases from medical literature.

The pathologic condition found in the reported cases of this description shows a remarkable resemblance to the large fibrous stricture of the pylorus and to that form of fibrous stricture of the rectum the etiology of which has been the subject of controversy for years. It is probable that these strictures of the alimentary canal have a common origin, and for convenience fibrous strictures of the gullet are classed with the cicatricial form.

Simple strictures of the esophagus, of unknown origin, are not uncommon. Kendall Franks records a number of this variety. Ewald states that the simple or peptic ulcer may be the cause of stenosis and cites cases; it is possible that this is the etiology of many of the so-called simple strictures. Congenital strictures are described at length by Carey, with a report of cases from the literature of the subject.

As the treatment of the simple and congenital forms is essentially the same as that of the variety under discussion, they are included in the same class. The locations of strictures of the gullet for anatomical reasons are most common in three localities: 1, at the isthmus of the esophagus opposite the cricoid cartilage; 2, at or near the bifurcation of the trachea where the gullet is crossed by the left bronchus; 3, at the diaphragmatic opening. According to the researches of Hacker this latter locality is most commonly affected by caustics.

In the adult the gullet is from nine to ten inches in length, and Richardson has shown that from the incisor teeth to the diaphragmatic opening it is about 14½ inches, measurements which aid the exact location by the sound. If the stricture can be passed by an olive bougie. Tillman advises that the tip be inserted well beyond the stenosis; on withdrawing, the handle is marked as resistance begins and again as it passes through the stricture. The distance can thus be easily estimated. Not infrequently several strictures are found, or the whole of the esophagus may be obliterated, as in cases reported by Richardson and also by Hacker.

DIAGNOSIS.

The diagnosis of the obstruction is easy, in fact, advanced mechanical stricture gives a group of symptoms which are self-evident; of these dysphagia and regurgi-

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tation of food are most prominent and if the obstruction lies in the cervical portion dysphonia and dyspnea may be observed. Sounding with suitable bougies completes the diagnosis.

In children with advanced cicatricial stenosis, the emaciation, the anxious, hungry expression, the constant desire for liquids and rapid regurgitation form a clinical picture which hardly needs a question. In adults the differentiation as to the nature of the stenosis may be more difficult.

Spasmodic stricture is not rare, and usually occurs in people of a hysterical tendency. According to Mansell Moullin, slight traumatisms are frequently the exciting cause of the hysterical form and the injury may be grossly exaggerated by the patient. The lack of sufficient cause, the suddenness of the onset and the neurotic history will usually suffice to clear up the diagnosis. Yet cases are recorded by Pepper and others in which it was necessary to resort to sounding under anesthesia to positively exclude organic stricture.

Esophageal diverticuli may cause difficulty in diagnosis. The origin of these pouches is stated by Maylard to be: 1, congenital; 2, the result of a strictured condition below; 3, from pressure or traction. These diverticuli are most common on the posterior wall about on a level with the cricoid cartilage. Error in sounding is thus liable to occur, the bougie passing into the pocket. The possibility of such occurrence will put one on guard and prevent serious difficulty in differentiation.

Butlin has collected a number of cases from the London hospital reports, many of which have been diagnosed as stricture. Malignant strictures and pressure tumors suggest at once clinical phenomena which will render exclusion easy.

Esophagoscopy cannot be considered an important aid to diagnosis. Hacker in Billroth's clinic used a Leiter panelectric light, with small benefit, and while numberous devices have been developed since, not much evidence of value has accumulated. Stork describes a new esophagoscope, but its usefulness seems uncertain. Einhorn is one of the few authorities who place reliance upon this clinical method in diagnosis.

PROGNOSIS.

The prognosis of untreated cicatrical stenosis is bad, there is a constant tendency to contract, indeed there seems to be no limit to this process.

The esophagus gradually dilates above the stricture, its muscular coat hypertrophies and by a squeezing process some nourishment is forced through the stenosed portion until a late date, the starvation being a very slow process. In time fatty degeneration of the muscle fiber renders it unequal to its task and also makes instrumentation exceedingly dangerous. Many deaths have been reported from instrumental perforation, by Sands and others. A casual examination of the literature of the subject leads one to think that this is not an uncommon accident in attempts at sounding in late cases. Weinlechner describes an island-like stricture which may prevent the passage of solid food and yet not cause complete obstruction to a fluid diet for an indefinite time. I have observed such a case.

CASE 1.—*Stricture of Esophagus Impermeable to Bougie—Comfortable Existence for Years on a Fluid Diet.*—Mrs. P. McK., aged 36 years, the mother of a large family, in August, 1891, gave a history of having swallowed caustic lye when a child; since that time she has lived on a fluid diet, being able to swallow only strained liquid food. She has frequent attacks of regurgitation lasting several days at a time, and thinks that on an average one-third of the food is regurgitated. At times she gets very thin.

She is a badly nourished woman, of slender build and anemic appearance. Careful sounding reveals a dense stricture near the cardic end of the esophagus. Above the stricture the esophagus is dilated to a considerable extent. Repeated examination failed to pass the stricture. The patient refused any operative interference, and has passed from observation.

TREATMENT.

The treatment of traumatism of the esophagus at an early period, before contraction takes place, is of the utmost importance. Many of the unfortunate results in this way can be avoided or rendered manageable. After the swallowing of a caustic substance systematic sounding should be commenced in from two to four weeks (Meyer). Foreign bodies should not be allowed to remain in the esophagus until ulceration is produced, and prolonged attempts at removal through the mouth can not be considered good surgery. Gerster directs attention to the ease with which foreign bodies can be removed through an external esophagotomy if done early, before ulceration has taken place; in this way Dr. C. H. Mayo has on five occasions readily removed foreign bodies from the lower part of the esophagus. The X-ray is of great value in locating many of these bodies, and a right incision in the neck instead of the ordinary left may be indicated, as in a case of an impacted overshoe buckle in which the loop to the right and the sharp prongs to the left decided the question[1].

In the lower esophagus the method of Maurice H. Richardson—removal through an incision in the stomach wall—is of the greatest value and must rank as one of the achievements of modern surgery. Tillman strongly advocates preliminary gastrostomy for feeding purposes in the primary stages of acute ulceration, thereby lessening the infection and hastening cure. In tubercular and syphilitic ulceration appropriate constitutional treatment should be used in conjunction with the sounding during the period of cicatrization.

DILATABLE STRICTURES.

Gradual dilation is the method of choice in this form of stenosis. The larger and softer the dilator the better, but in many advanced cases such instruments are wholly worthless. In these cases the use of whalebone olive-tipped probes are best for the smaller varieties, and for the larger bougies a whalebone stem to which increasing sizes of metal or ivory olive tips can be attached are the most valuable. If the tip is made very long and tapering it will engage in the stenosed portion more quickly than the ordinary olive tip, which expands so rapidly that one can not easily appreciate whether it is engaged in the stricture or not.

In a previous paper on this subject, read before the Minnesota Academy of Medicine in March, 1894, I exhibited what I then believed to be a new probe in which three or four increasing sizes of bulbs were made on a single stem (Trousseau's), the idea being that the small tip would railroad the others through. As a matter of fact it prevented that elasticity within a few inches of the tip which is a prime essential in a good bougie, enabling one to pass through the curved pharynx without injurlously impinging on the posterior wall. This elasticity is necessary, as it also permits of some play at the point and facilitates search of the face of the stricture for the opening.

Many cases appear to be impermeable to the probe, which in time may be safely passed. The frightened little sufferer adds to the general discomfort and renders a hasty judgment in this regard only too natural. I once heard an eminent genito-urinary surgeon say that

impermeable strictures of the urethra happened largely in an early experience, and I am sure that this is true of esophageal stricture. With care and gentleness a bougie can usually be inserted in the opening, although several sittings may be required. In such cases a number of whalebone bougies lubricated with glycerin should be passed into the gullet and against the stricture in the same manner as filiforms are used in the urethra, and by alternating probes one will usually slip through. It is best to stop here, and then every other day repeat the process, using perhaps several increasing sizes at one sitting; the first probe introduced should have a very flexible handle, and when in place straightens the throat curve so that the larger and stiffer bougies readily follow, each one being left in the stricture until the next one is ready by its side. In a few cases it may be necessary to use an anesthetic the first time or two, but usually the patient will sit on a low stool facing the operator, and from the relief afforded by the ability to retain a little nourishment will soon face the ordeal with an unexpected degree of fortitude. The frequency of sounding depends on the case, every other day being sufficient, and in sensitive cases perhaps too frequent. Many months are occupied in this gradual dilatation, and after apparent cure a sound should be passed occasionally for years.

CASE 2.—*Stricture of Esophagus.—Gradual Dilatation.—Recovery.*—T. C., a male, aged 2 years, of Mantorville, Minn., was admitted to St. Mary's Hospital, Rochester, Minn., Feb. 24, 1898, with a history of having accidentally swallowed concentrated lye seven weeks previously. Difficulty in swallowing developed at once. At first this was due to traumatism and resulting ulceration, later to the contraction.

At no time since the injury has solid food been taken, and a large part of liquid nourishment swallowed is regurgitated. Before admission to the hospital several attempts at sounding the esophagus had been made, but without success.

On examination a stricture was detected in the thoracic esophagus. Under anesthesia several whalebone bougies were placed in position, and by using first one and then another, a probe was finally passed into the stomach. The stricture dilated easily and a fair-sized bougie was introduced at this time. Systematic sounding every third day was carried out, and March 8, 1898, the little patient was discharged, able to take liquids easily, and chopped meat and softened bread with but little difficulty. Since that time Dr. S. H. VanCleve of Mantorville has continued sounding at intervals, the esophagus being of nearly normal caliber.

NON-DILATABLE STRICTURES.

Stenosis involving a large extent of the esophagus may prevent gradual dilatation or even continue to contract while attempts at dilatation are being carried out, and in a few cases the difficulties and dangers attending the sounding of a tight stricture makes a resort to some more rapid method desirable.

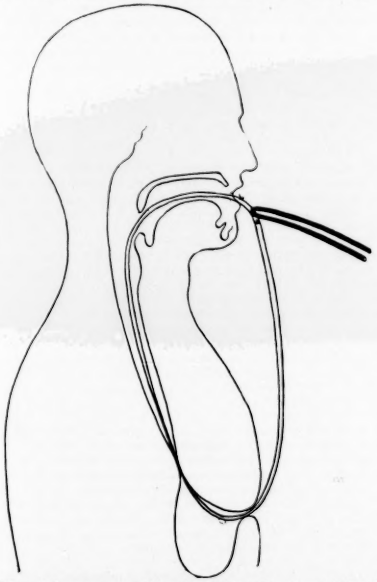

Figure 1 shows manner of introducing the silk cord with the rubber drainage tube looped in position ready for introduction.

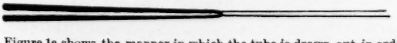

Figure 1a shows the manner in which the tube is drawn out in order to pass through a tight stricture.

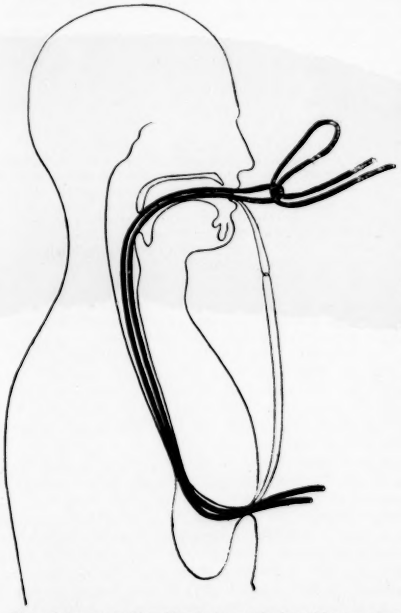

Figure 2 shows a double rubber drainage-tube, looped into one already drawn through. As many tubes as may be necessary to obtain the desired dilatation may be drawn through in this way.

For strictures in the vicinity of the cricoid cartilage external esophagotomy after Billroth is the operation of choice. Like the perineal cut for stricture of the urethra, funnel-shaped retraction of the cut portion is caused by adhesion to the external tissues divided and it lessens future contraction. This operation, first performed by Mitchel and later by Annandale, has stood the test, and should not be long delayed. A most interesting case of this kind is recorded by Christian Fenger[2]. Kendall Franks has successfully performed esophagectomy in a case of simple stricture in this portion of the esophagus, the divided ends being sutured over a tube passed through the nose.

For dense stricture above the arch of the aorta and

below the point which can be directly divided, Gussenbauer's combined esophagotomy is the best operation; through an external incision in the neck a tenotome is introduced and passed downward to the stricture, which is then divided.

I take the liberty to introduce an illustrative case previously reported[3]:

CASE 3.—*Two Strictures of Esophagus—Prolonged Dilatation and Combined Esophagotomy—Recovery.*—J. Haney, aged 4 years, was seen in January, 1893. In the spring of 1892, while living in North Dakota, the child swallowed concentrated lye. After a month's severe illness, he gradually recovered, but with an increasing difficulty in swallowing. During the past three months all food had to be strained and he has frequent attacks of regurgitation. The material regurgitated is brought up somewhat slowly. He is a moderately nourished boy, of good disposition, which materially aided treatment. On the introduction of a catheter it was arrested at the isthmus of the gullet. After some manipulation a No. 3 urethral catheter was passed three inches farther downward, where it was completely arrested.

It was very evident that there was a stricture at the level of the cricoid cartilage, and a second in the intrathoracic portion of the esophagus, undoubtedly produced by the action of the esophageal muscles at the time of the original accident, causing the effect of the lye to be located at these points.

Regular sounding was instituted and continued at intervals of three to ten days, by myself or Dr. C. H. Mayo, with but slight interruption for one year. At the end of two months the lowest stricture was passed by a fine whalebone bougie. This stricture was very dense, and resisted sounding obstinately; it would be only at intervals of several sittings that the bougie could be introduced into the stomach. At the end of a year's perseverance the upper stricture had yielded to the extent of admitting a No. 5 catheter and the lower one a No. 3. The boy was well nourished, did not regurgitate unless he took solid food, and was able to take softened bread and finely chopped meat. During the preceding two months no perceptible improvement was manifest; therefore, on Feb. 15, 1894, he was admitted to St. Mary's Hospital, Rochester, Minn., and on Feb. 16, left external esophagotomy was performed by Dr. C. H. Mayo. The upper stricture was now readily dilated by forceps. The lower stricture, which was below the level of the upper end of the sternum, was carefully nicked with a dull knife on a grooved director and dilated with forceps, permitting of easy catheterization of the esophagus.

Unfortunately, the majority of dense strictures are in the lower esophagus, or if there is one stricture in the upper portion another will usually be found lower down. In three cases in the experience of the writer more than one stricture was present, but the lower in each instance was the more dense.

How to reach strictures situated below the arch of the aorta in the thoracic esophagus by direct means has been, and is yet, a problem. Nasolloff, Quénu and Hartmann developed an operation for external esophagotomy on the cadaver, which Rehn first performed on the living subject, an incision from the fourth to the eighth rib on the right side of the spinal column being employed.

The difficulties and dangers of this plan of attack are so great that indirect measures are to be relied upon.

For this purpose two methods are available—Abbe's string-saw and Ochsner's operation; in the latter a loop of rubber tubing is used as a dilating medium. The one method supplements the other. Division of the stricture by the string-saw invented by Abbe has been performed a number of times with great success.

Through a gastrotomy wound a stout silk cord is passed in a retrograde way through the esophagus and out through the mouth or through an external esophagotomy. The stricture is made tense by engaging bougies into it from below, and by a sawing motion of the cord, the tight bands are divided, while the important soft parts are crowded back out of the way. After full dilatation has been secured the incisions can be closed, or a rubber tube is inserted to a point above the stricture and brought out of the gastric incision, the latter being united to the margins of the abdominal wound. In two or three days the tube is removed and sounding from above employed in the usual manner.

CASE 4.—*Stricture of Esophagus—Division and Dilatation After Gastrotomy and External Esophagotomy—Testimony as to the Value of Abbe's String Method of Division.*—H. W., aged 3 years, of Amboy, Minn., was admitted to St. Mary's Hospital, Rochester, Minn., on Oct. 5, 1892, with the following history, given by her mother.

One year previously the child accidentally swallowed caustic lye. For four years she was very sick, then gradually improved for several months, although totally unable to swallow solid food at any time. During the last six months she has had great difficulty in swallowing liquids, and has regurgitated from the esophagus more than half of the nourishment taken.

She is emaciated to a considerable degree. Upon being given two ounces of milk it was drunk with avidity, but was nearly all regurgitated. The dilated esophagus above the stricture holds nearly four ounces of fluids. Bougies were inserted through the pharynx into the esophagus, but were completely arrested at its lower end, while careful search of the face of the stricture with a number of whalebone bougies, under anesthesia, failed to pass the stenosed portion. At intervals of four days this search was continued, but without result. While undergoing these repeated examinations the child became much better and was able to retain a larger proportion of liquid nourishment, and improved visibly.

Proper manipulation was much interfered with by the short, sharp curve of the child's pharynx and its small size; therefore external esophagotomy was urged upon the parents to permit of more direct access to the parts involved. This was declined, and the little girl was taken home at the end of two weeks.

On July 19, 1893, the child was readmitted to the hospital. The slight improvement had been of short duration, a gradual closing of the small channel had taken place, and for the past four weeks it had been nearly, if not quite, impermeable, so that the little patient had been nourished by rectal enemata.

She was emaciated to a marked degree. As before, careful search utterly failed to pass the stricture. External esophagotomy with a hope of finding a way through the damaged esophagus did not promise the rapid relief that the child's nutrition demanded; therefore, on July 20, 1893, a gastrostomy was made after the method of Fenger, the incision being made as high up and as close to the median line as possible, to permit of retrograde dilatation.

Fenger's operation was chosen, as permitting more direct and easy access to the cardiac orifice of the stomach, in place of that of Hacker or that of Witzel, which are far superior as to the preventing of leakage from the fistula, but also present greater obstruction to intragastric manipulation. The child was now well nourished through the gastric fistula, and twice a week the lower face of the stricture, which was at the diaphragmatic opening, was carefully searched for an outlet. On two occasions the finger was introduced through the fistula into the stomach and used as a guide for the probe, the patient being anesthetized. The dilation of the fistula necessary to introduce the finger in so small a subject greatly increased the leakage through the gastric opening, and the child again began to fail, from the inability of the stomach to retain nourishment.

On Aug. 25, 1893, a left external esophagotomy, at a low point in the neck, was performed by Dr. C. H. Mayo, and a bougie introduced by him through this opening and pressed against the stricture, pushing it downward into the stomach and holding it steadily. With a finger in the stomach, careful search now enabled me to pass a long malleable German-silver probe from the stomach through the stricture and out of the esophageal fistula in the neck, and a heavy double strand of braided silk was drawn through the channel, having an end out of the opening in the esophagus and also out of the gastric fistula. The stricture was about three-quarters of an inch in length, as nearly as could be ascertained. By using one strand to cut the tissues, after the method recommended by Dr. Robert Abbe, while knots were tied on the second strand and pulled into the obstruction to keep the stricture tense, the opening was greatly enlarged. This method of Abbe's was of the greatest value, and had but one disadvantage—that of cutting the edge of the gastric fistula when drawn taut. This was in part obviated by holding the lower end of the cutting thread in the bite forceps, held on a plane with the stricture from within the stomach. Knots on the second thread, to render the stricture tense, were equally good and easier of execution than pushing bougies from below into the small opening, as recommended by Abbe.

During the succeeding month at intervals of four days, this

process of division was carried on, and perforated shot clamped upon the thread were drawn through to assist in the dilatation, as they readily followed the tortuous passage. Bougies then became permissible, inserted first from the neck and later through the mouth.

In five weeks the threads were removed and dilatation was carried on with olive-tipped whalebone bougies made for the purpose. A sister of the little patient was taught to pass the probe, and the child was discharged in two months in a good general condition and able to drink milk readily and to take chopped meat and bread with little effort. The esophageal fistula had spontaneously closed, and the gastric opening, after being touched with the cautery was nearly cicatrized. March 19, 1899, the patient is well.[4]

Ochsner's operation is performed as follows: The anterior wall of the stomach is drawn out of a left oblique incision through the abdominal coverings; a small opening is made into the stomach sufficient in size to introduce the finger. A whalebone probe, to the tip of which a silk string guide has been tied, is now passed through the esophagus either from above or retrograde, as in the Abbe method. With this guide a loop of silk is drawn out of the gastric incision in such manner as to leave the guide as a third string. Into this loop a small soft rubber drainage-tube three feet or more in length is caught in the middle; by traction on the ends of the doubled thread through the mouth, this loop of rubber tube is drawn through the stomach and made to engage in the stricture.

The greater the amount of traction the smaller the stretched rubber tube until it is sufficiently reduced in size to enter the stenosed portion; by alternating the direction of the pull the tube is drawn out by its free ends and in by the silk loop. Increasing sizes of tubes can be employed, and if necessary the third string can be used as a string saw after the Abbe plan of procedure. This operation was first successfully performed by Dr. A. J. Ochsner, of Chicago, in February, 1899. In April, 1899, I had an opportunity to employ this method, with the most satisfactory result.

CASE 5.—*Stricture of the Esophagus—Gastrostomy and Dilatation by Ochsner's Method—Recovery.*—G. H., a female, aged 9 years, of Etna, Minn., was admitted to St. Mary's Hospital, March 3, 1899, with the following history. Four months before, she accidentally swallowed concentrated lye. The ulceration produced was slow in healing and the difficulty in swallowing gradually became more pronounced. For the past month only liquids have been attempted, and the greater part has at once been regurgitated. Emaciation was extreme. On examination, a stricture in the lower esophagus was readily detected by a bougie. After considerable effort a fine whalebone probe was passed. There appeared to be two points of contraction, about an inch apart, the lower being at the diaphragmatic opening. Systematic probing during the next seven weeks did not yield much result; occasionally a larger probe could be passed, and again only the finest could be used. During this time rectal feeding was employed to supplement the very limited nourishment obtained by means of the esophagus. The little patient became so reduced that on April 20, 1899, the abdomen was opened by a left oblique incision. A fine probe armed with a silk thread was passed through the esophagus into the stomach. The thread was caught and drawn out of the incision; by this means two threads of heavy silk were drawn upward and the silk guide left in position.

A quarter-inch rubber drainage-tube was lubricated and caught by the middle in the loop; by traction from above, the tube was drawn through the stomach and into the esophagus, considerable traction being required to engage it in the strictured area. By first using traction upward on the strings and then downward on the free ends of the tube, the stricture was rapidly dilated. The dilating tube was removed and a half-inch rubber tube was introduced into the gastric opening, and through this tube the three threads were drawn, the free ends being tied to the ends projecting from the mouth.

A gastric fistula was then formed after the method of Bernays, the rubber tube being enclosed by three superimposed circular purse-string sutures of catgut, one-fourth of an inch apart, introduced in the wall of the stomach around the incision, the margin of the fistula being then sutured to the abdominal wound. This causes a cone or nipple-like projection of the wall into the lumen of the stomach, and through this tube sufficient nourishment was introduced. The general condition rapidly improved and systematic sounding was carried on as before, with increasing sizes of bougies. The patient is still under treatment.

Internal esophagotomy, first performed by Maisonneuve in 1861, has been made about twenty-five reported times (Richardson), with a death rate of over 25 per cent. Above the arch of the aorta it is unnecessary, below it is a chance shot and success a lucky accident. Koenig believes that permanent gastrostomy is preferable. Sands' instrument shares with Mackenzie's the doubtful honor of being best for the purpose. Meyer, in an interesting summing up of internal instrumental esophagotomy, says that the danger of accidental injury to important structures is not greater than the introduction of infective material without the gullet, such infections being responsible for more than half the mortality. He recommends gastrostomy for the purpose of feeding and also to allow of preliminary cleansing of the operative field, if internal instrumental esophagotomy is adopted. Internal divulsion is nearly as dangerous as the cutting operation and less effective. Fletcher's esophageal divulsor has been used a few times. Dr. S. J. Mixter has devoted a great deal of attention to this subject. He recommends that Symonds' tube as originally advocated for malignant strictures be introduced, and believes that that steady pressure will gradually increase the caliber. It would seem that a stricture of sufficient size to permit of permanent tubage could be overcome by gradual dilatation. The literature of the subject is filled with cuts of more or less ingenious instruments for the purpose of dilating these strictures: the spiral rolled tin sounds of Rosenheim, the laminary tent of Senator, and a host of others, interesting but of questionable value; of these linear electrolysis as introduced by LeFort has had the greatest reputation. The marvelous nature of the cures wrought in many cases leads one to think that the enthusiastic advocates of electricity failed to exclude the spasmodic variety with sufficient care. One hears much less of the cure of strictures in this manner than five years ago.

IMPASSABLE STRICTURES.

In a moderate number of strictures a probe can not be passed through the mouth, yet after an external esophagotomy the bougie can be manipulated to so much better advantage that the opening may be found and, after a few soundings, conducted through the fistula; the future dilatation is continued through the mouth. Graser particularly advises this in children. Kammerer reported a case before the New York Surgical Society in which, after failing to pass the stricture by retrograde sounding through a gastric incision, success followed probing from above through an external esophagotomy. Koenig had a series of fine silver balls made and threaded; one swallowed at bed-time would usually pass the stenosed area during the night and was drawn back through by the thread in the morning. Zecheisen records two cases in which an opening passable to a sound was secured in this manner. Billroth succeeded in several cases with a cylindrical cloth bougie partly filled with mercury, the weight and adaptability of the metal carrying it through.

Gastrotomy and retrograde dilatation were recommended by Schede in 1883, and first performed by Trendelenburg. Kendall Franks collected twenty cases cured in this manner. Since that time a large number of successful cases have been recorded. Great and unexpected difficulty is often experienced in attempting

retrograde dilatation through a gastric fistula. It is a surprising fact that under such circumstances it may be next to impossible to find the cardiac opening. For this reason the dilatation should be carried out as the primary operation if possible. Richardson directs that the anterior wall of the stomach be delivered and a small transverse incision made into its cavity near the lesser curvature, in the neighborhood of the pylorus; by traction on the stomach just below this incision the lesser curvature forms a sulcus along which the instruments glide into the cardiac orifice.

Hagenback turned defeat into triumph in a case in which he was unable to find the stricture from below, and made a gastric fistula for feeding purposes. He caused the patient to swallow a small perforated shot to which a thread was attached; this passed through the stricture and was hooked out of the fistula, acting as a guide for future manipulation.

Abbe recommends that a string guide be introduced by which dilating bougies can be drawn upward retrograde, and that this guide should be retained in place until a sound can be introduced from above. Observation has shown that it is possible to pass an instrument retrograde when impassable from above, but that regular dilatation from below without a guide may prove very difficult.

Twenty-eight cases from the literature of retrograde dilatation are analyzed by George Woolsey, and the comparative merits of the various methods of cutting are clearly stated.

It may happen that the condition of the patient will not permit prolonged attempts at retrograde dilatation, and a rapid gastrostomy should be done by the Witzel or the multiple purse-string method of Bernay, as either permits immediate feeding, does not leak, and yet can be readily converted into a direct opening by a dilator when needed for later attempts at retrograde dilatation. With the improvement in nutrition which follows gastrostomy and the absolute rest to the esophagus, in a short time a probe may be passed from above.

CASE 6.—*Cicatricial Stenosis of the Esophagus—Gastrostomy—Gradual Dilatation Through the Mouth.*—V. M., aged 3 years, of Madison, S. D., was admitted to St. Mary's Hospital Rochester, Minn., July 1, 1894. Nine months previous to admission the little fellow had accidentally swallowed concentrated lye. Symptoms of esophageal obstruction becoming more and more pronounced, attempts were made to dilate the strictured gullet without success. At first solids were regurgitated, later fluids, and for six weeks nourishment had been maintained by rectal feeding.

The child is emaciated to an extreme degree and is too feeble to stand. Fluids were eagerly swallowed only to be at once regurgitated. Attempts to pass whalebone probes through the stricture were unavailing. Gastrostomy after the Witzel method was performed and immediate feeding resorted to.

Regular feeding through the gastric fistula soon improved the general condition. Systematic search for an opening through the stricture from above was made every other day for several weeks before a small whalebone probe passed. After this success the bougie failed to find the orifice a second time for a number of days. Three months of persistent effort finally developed a moderately sure passage. For five months all the feeding was carried on by the gastric fistula, a good-sized opening through the stricture having developed by this time.

On Feb. 22, 1895, the patient was discharged, being able to eat ordinary food and since that time he had been regularly sounded and had remained in excellent health, until June, 1898, when he was readmitted with complete obstruction, having three days before accidentally swallowed a mass of chewing gum which had tightly wedged in the opening; this was removed with some difficulty.

During the four years which had elapsed the same bougies were continued by his parents without taking into account the growth of the child.

Proper sized probes were obtained, and he has since remained in good condition.

There will yet remain a few cases in which a large part of the esophagus is obliterated, and permanent gastrostomy after the Frank method is the melancholy outcome.

In summing up, the following conclusions may be formulated:

1. Systematic sounding should be commenced in from two to four weeks after the swallowing of a caustic substance.

2. Should the traumatism be severe, immediate gastrostomy will lessen inflection and hasten cicatrization, sounding being carried on as before.

3. Non-dilatable strictures in the vicinity of the cricoid cartilage should be divided by external esophagotomy.

4. Stricture above the arch of the aorta may be safely cut by a combined internal and external esophagotomy.

5. Dense thoracic strictures are best dilated by Ochsner's method, and, if necessary, divided by Abbe's string saw.

6. Impassable strictures should be treated by retrograde dilatation.

7. A dilated stricture should be occasionally sounded for years, if not for life.

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Original Articles.

QUININ IN MALARIA.*

BY GEORGE DOCK, M.D.

ANN ARBOR, MICH.

A perusal of current literature and an experience with physicians in active practice show many differences of opinion regarding the use and value of quinin in various malarial diseases. The recent war, by exposing large numbers of men to real or imaginary malaria, brought out in a striking manner many of the most common views, and the numerous articles directly and indirectly touching the subject seem to justify a somewhat dogmatic consideration of certain salient features.

Why We Use Quinin in Malaria.—It should not be forgotten that our use of quinin is due to an accidental discovery and that the value of the drug and fairly reliable methods of administration were known long before we had any accurate knowledge of the cause of the disease or the nature of the changes produced by it in the body.

As is well known, malaria is a disease that in most cases tends naturally to recovery, so far as each attack is concerned, with a tendency, almost as strong, to relapses. It might, therefore, be considered good practice to treat the patient expectantly as many treat other self-limited diseases. Without wishing to appear as advocating such a policy in any self-limited disease, I wish to point out why we should not, as a matter of routine, in malaria.

Each malarial paroxysm does harm in certain well-known ways, and in some not so well known. Of the first it is enough to mention the destruction of red blood-corpuscles, which, even in a seemingly mild case, may be quite extensive, and in a severe paroxysm may amount

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to the loss of a fifth or more of all the blood-corpuscles in the body within less than forty-eight hours. At present we have no means of recognizing in practice whether a given attack is going to cease spontaneously or not. Rather complicated stains and considerable time spent in an examination may enable an expert to make a very accurate prediction, but such methods may lead us astray by revealing very few parasites in a specimen, suggesting the probability of a mild case, when the very next paroxysm may be very severe. So, about twelve hours after the first chill in the relapse of a malaria acquired at Santiago, in an examination lasting half an hour, I found very few organisms. Dried preparations, stained and examined carefully, later on confirmed the examination, but the next day it was easy to find parasites belonging to three distinct generations, tertian, in large numbers.

When we remember that we have a drug that will cut the attack short with almost absolute certainty, and usually with little risk to the patient, it is easy to see how the problem differs from that of treating rheumatism with salicylates, or any other acute disease by specific means, not excepting diphtheria and its antitoxin.

Choice of Preparations.—In this paper I use the term quinin in a wide sense, including all the more useful of the cinchona alkaloids. At present the quinin salts and the promising euchinin are the only ones necessary to choose from.

Dose.—One of the most unsettled problems among practitioners in general is the dose of quinin, although among those with special experience the diversity of view is not so marked. In the late war doses of quinin as large as 60 to 100 grains of the sulphate per day were frequently given in the West Indies, and even in army hospitals in this country 48 to 60 grains per day were often used. Yet the most experienced men in Africa, Italy and the East Indies rarely find it necessary to give more than 30 grains per day and usually get good results from half that dose, while 45 grains per day is the maximum of many of the most judicious physicians. In the northern half of the United States the milder intermittents are often checked by a single dose of 5 grains, more certainly with 10. In general, however, 15 grains may be looked on as an average dose in such cases. In the severe and more obstinate estivoautumnal forms 20 grains a day may be taken as the normal dose.

One Dose or Divided.—There is another point on which views differ. A consideration of the processes involved seems to prove to me that the remedy will be most effective if given in one dose. The problem is to check the growth, or to kill, if possible, the parasites. This can most reasonably be expected by bringing the greatest possible quantity of the remedy, consistent with the safety of the host, in contact with the parasites. This is the method most frequently followed by success in the case of many intestinal parasites, and the conditions in malaria would seem to be not dissimilar. In practice it is not uncommon to find patients unaffected by doses of two grains every hour, who are at once relieved of further paroxysms by a single dose of only one-half or one-third the quantity formerly taken in a day. As an intermediate method we may consider that of giving moderate doses, say 5 grains three or four times a day. This method is often successful, much oftener, I believe, than that of giving two grains every hour. Its success, I believe, depends on the fact that the single dose was large enough in the case in question, if given at the right time, to produce a distinct effect on the parasites, and there are some cases in which, owing to the condition of the patient, and his temporary or usual reaction to quinin, this method may be followed with advantage. In ordinary cases, however, where the paroxysms are distinct, the best method is that of giving the whole amount at once, or within a time not longer than two hours.

At What Time Should the Dose be Given?—From the time of Sydenham some of the most eminent physicians have given the drug in the decline of the paroxysms. This is the method recommended within recent times by such men as Baccelli, A. Plehn, Maclean, Manson, Ziemann, and many East Indian physicians. On the other hand there is a tendency at present to give quinin with reference to the expected paroxysm. This practice is perhaps largely due to the influence of Golgi, whose authority in matters malarial is deservedly great. The subject has always been more or less affected by speculation. Sydenham thought that if he gave "the bark just before the fit," he would "check the method by which nature would get rid of the febrile matter." The explanation advanced in favor of the other plan is that by giving the drug several hours before the paroxysm, the parasites just set free would be taken in their most susceptible stage.

The matter seems one that should be settled rather by experiment that by a priori reasoning. This was indeed the method followed by Golgi,[1] but it has always seemed to me that his observations do not bear the conclusions he and others drew from them. He showed that quinin given in the stage of segmentation prevents the growth of the young forms. He claimed that the action of the drug was less certain when the parasites were in the endoglobular stage, and asserted that although given in this stage the paroxysms were often checked, especially in tertian fever, yet there was greater risk of relapses than when the drug was given before the paroxysm. Golgi's observations were made for the most part on quartan fevers, of mild type. In tertian fevers he found that the paroxysms could be checked by giving the drug in the apyrexia, when the parasites were in the endoglobular stage, and he had to suppose that in tertian fever the red blood-corpuscles offer less difficulty to the entrance of quinin than they do in quartans, a supposition that seems rather gratuitous. Golgi, of course, did not aim at aborting the oncoming paroxysm by giving the remedy several hours before. He thought that by so doing he had the greatest certainty of preventing the next paroxysm. Baccelli[2] made some careful experiments with reference to the most favorable time for giving quinin, using intravenous injections. He found that quinin given at the beginning of the febrile attack, or three hours earlier, did not abort the paroxysm, and that given in the acme, the crisis was not hastened. If given at the decline or end of the paroxysm, it either prevented the next one or rendered it milder. He therefore recommended the decline as the best time for giving the drug, especially in subcontinued fevers.

I had been making observations for two years on the effect of quinin given at different times, when Baccelli's article appeared, and immediately began to give the remedy in the decline. The results were more certain and more satisfactory in every respect than by other methods, so that I have followed it with rare exceptions. In some cases I have given the remedy from three to five hours before the paroxysm. I have also had opportunities for seeing cases treated in the latter way, or at various other times, by colleagues. A number of medical acquaintances have taken up the Sydenham plan, and among these Dr. F. H. Williams[3] has published some in-

structive histories, with charts. The real and apparent contradictions between the Sydenham and Golgi methods are well worthy of careful control-observations in which the conditions of the parasites and the temperature and other symptoms, and the administration, absorption and excretion of quinin go hand in hand. As an example the following may be given:

H. G. acquired malaria in Santiago in July, 1898. He was admitted to my clinic, December 31, having had a chill about 11 a. m. The last chill prior to this was two weeks before. For several days before admission there was pain in the back. Just after the chill the blood showed a few half-grown endoglobular bodies, and very few larger ones. In dried and stained preparations the latter showed numerous small vacuoles and in general stained badly. At 8 p. m. there were only a few endoglobular forms, larger than at noon. Many of these were in many small round masses, connected by narrow filaments, suggesting degeneration. No medicine had been taken and none was given.

January 1, at 9:30 a. m., there were many parasites in the blood, one or two in every field—oil-immersion. These were about equally divided between half-grown and almost mature bodies, indicating a double (tertian) infection with paroxysm imminent. The larger forms disappeared without showing segmenting bodies, between this and 12 m., and the temperature rose—between 12 and 1:30; 99.5 degrees and a chill at the latter—reaching 104.5 degrees at 3 p. m. The chill lasted an hour. The temperature began to fall at 4 p. m.; at 4:45 sweating began and continued until 6.

At noon the smallest ameboid forms began to appear in the red corpuscles, and by 4 p. m. it was clear that the endoglobular forms seen before really belonged to two distinct sets, one then about half grown, the other almost mature. The latter were too numerous as well as too far from the stage of segmentation to permit the conclusion that they were belated bodies from the paroxysm in progress, so that a triple tertian was diagnosed. During the chill and fever the patient was given codein in spirit of mindererus, and lemonade.

At 6:45 p. m., the temperature having fallen to 101.6, 5 grains of quinin hydrochlorate were given in solution, and repeated at 7:15 and 7:45. By the time the last was taken the ears were ringing.

The urine was collected every half hour from 6:45 p. m. and quinin tests (bromin) made in the ethereal extract by my assistant, Mr. S. R. Boyce, Ph. C., who devoted much skill and care to the work. Fluorescence appeared half an hour after the first dose, the blue color half an hour after that, and the thalleioquin reaction was most intense from that time up to 8:45 p. m.

At 9 p. m. the temperature rose without a chill to 103.8 degrees and fell from 12 midnight to 9 a. m., reaching 101 degrees. It again rose, reaching 103.8 degrees at 11:30 a. m. At 11:45 there was a chill, lasting 45 minutes. Sweating began at 4.

In the morning the blood showed only large endoglobular bodies, with one flagellate. At 12 noon a few unpigmented ameboid bodies appeared in the red blood-corpuscles. There was, therefore, only one generation left.

At 1 and 1:30 p. m. five grains of quinin were given in solution as before; at 1:45 the patient vomited. As the temperature record shows, the medicine was given too early. The decline of the fever was not positively in progress. Tests of the urine at 1:45 and 2:30 made it probable that some quinin was absorbed, since the reaction became more intense after the second dose. At 7, 7:30 and 8 p. m. the medicine was again taken and the urine examined as before. All traces of the former doses had disappeared. In half an hour after the first dose the reaction was present; marked in an hour, and for two hours after that. It was weak after twelve hours, but visible up to nineteen hours. The parasites were therefore brought in contact with the drug not less than about eight hours after segmentation. They failed to develop, and the patient remained free from paroxysms after 30 grains of quinin retained and 10 partly absorbed, no more being given for seven days.

The case illustrates the rapid absorption of quinin. We did not have an opportunity of making observations on the time of absorption when given before the paroxysm, but two observations on prophylactic doses in the same patient, seven and fourteen days after the last chill, showed slower absorption and more persistent final reactions.

It has been thought by some that Professor Koch has come out as an advocate of the Golgi method in African fevers, which are etiologically the same as our summer and autumn malaria. The matter is only apparent. Koch claimed that in these fevers the quinin must be given at the time when the parasites are in the large stage. In the cases whose charts are published this corresponds to the later part of the decline, and from six to eight hours before the rise of temperature in the next paroxysm.

There are some practical facts bearing on this question that are not introduced into the discussion as much as they deserve. It is often forgotten that the chill does not always occupy the same place in the temperature curve, but comes anywhere from the beginning to the end of the rise, or even later. Since the chill is often taken as the guide to the time of the paroxysm, the difference may render illusory the time limit of three to five hours given by Golgi. Many of Golgi's followers have lengthened the time to eight hours, thus going back to a period at which Golgi claimed the results are likely to be poor. Directions based on the chill are especially faulty in the severer fevers, because there may be no chill.

The real condition of the development of the parasites can only be discovered by the microscope, but such observations may take a great deal of time, and, except in the case of an expert with plenty of time, may be misleading. Even in such a case, the ripening of the parasites in successive individuals extends over so long a time as to throw difficulty about a strict following of Golgi's rule. In tropical cases, such as occur in many parts of the United States, the generations are often very much confused, and the disease is rarely so simple and typical as Koch assumed from his first observations in Africa. Prolonged examinations of the blood are essential for those who wish to study the therapeutics of malaria, but in practice we can hardly ask more than that the microscopic diagnosis be made, with as close an approximation to the stage of development, the forms of the parasites and the condition of the blood as the exigencies permit.

The Golgi method involves two risks which, though usually trifling, can be avoided by the Sydenham plan. The first is that a patient seen in a primary paroxysm may anticipate a tertian fever, and, while waiting for the five hours' time, be taken with the paroxysm of a double infection. Had he taken his medicine in the beginning at least one, perhaps two, fits might have been prevented.

In the second place, the last dose ordered five hours

before the expected paroxysm is often useless, since the parasites are gone. This can be discovered by the microscope. As Williams has well remarked, the method advocated saves quinin.

That absorption from the stomach is less certain and prompt in the time just before the paroxysm, and in the onset, is widely believed, and I think it is true. It is also widely believed that the symptoms of cinchonism are more marked if the effects of the drug appear in the early part of the fever. I think this is also true, though the point is difficult to demonstrate.

A careful consideration of all the data led me to the following conclusions:

In a tertian or quartan intermittent, or any combination or duplication of these, quinin should be given in the decline of the paroxysm if possible; or not later than at the end of the apyrexia. The difference depends on the time the patient is seen or the diagnosis made. The dose should be given at one time, or in parts at short intervals, in such a form that absorption may be confidently expected. I have found it very satisfactory to give the full dose in the form of the hydrochlorate, in capsules, followed by 15 drops of dilute hydrochloric acid. In patients who have been unable to retain other preparations, I have been successful by giving three five-grain capsules half an hour apart, with a small dose of dilute hydrochloric acid after each, with directions to repeat in half an hour if any dose was vomited.

In an ordinary single infection, when the drug is given in the decline, there will not be another paroxysm. In double infections there may be another paroxysm, often milder than the preceding. If there is a rise of temperature of more than a degree, or if the blood shows parasites, a second dose should be given, also in the decline, and if necessary even a third or more. Few cases require more than three. After the temperature falls no quinin need be given for the specific effect, and if it be used as a tonic not more than two grains three times a day should be taken. Other remedies may be used as indicated, the indication for iron being controlled if possible by an expert examination of the blood besides that of the patient in general.

The evidence of the decline of the temperature is best based on the thermometer, used every hour after the chill, but in case the characteristic profuse sweating occurs, it is a sufficiently accurate guide, and the great changes in the body following sweating probably assist in the absorption of the drug.

In the remittent or estivoautumnal fevers, the intervals are not so clearly defined as in the tertian and quartan infections. If they are, the decline of the fever can be recognized by careful use of the thermometer, or by the improvement in the subjective sensations. Very often in these cases the parasites become mature at times varying widely, so that not only is the curve difficult to interpret but the parasites are not equally influenced by the remedy. Very often, too, the symptoms are so alarming or the number of germs found in the blood so large that immediate treatment seems necessary. In such cases the quinin should be given in doses of five to ten grains, according to the severity of the case, at intervals of four to six hours, until a marked remission occurs, and then the daily intermittent dose be given until the fever disappears, or, better, until the condition of the blood shows that quinin is not indicated.

Relapses.—The treatment of the relapses of malaria is a matter of importance. Except in mild cases, a return is to be expected and guarded against. This is a fact long known but apparently often forgotten. Patients are often aggrieved to find that the "dead-sure" prescriptions of their doctors —usually polpharmaceutic marvels—have not stopped their chills for all time, as they were led to expect.

The relapse often takes place on the seventh day or some multiple of it, either fourteen or twenty-one days, or later. In severe infections, it often comes earlier and in the relapse of Cuban fevers the fifth day or the fourth after the last fit may see the return of a paroxysm. The cause of the relapse is not difficult to explain. The parasites are scotched, not killed, and only reach sufficient numbers to cause another paroxysm after a lapse of time. They can be found, by careful search, before the day of the paroxysm, and they sometimes cause slight elevation of the temperature in the days preceding the relapse. Golgi's claim that relapses are less frequent in cases treated according to his plan than if the drug is given in the decline must have many exceptions. It is therefore advisable to give quinin at intervals after the paroxysms have stopped, even if his method is used. The interval in ordinary tertians should be seven days, in more severe cases five days. In this way we not only lessen the danger of relapses, but we also cause a discontinuous or intermittent sterilization of the blood and hasten the complete recovery of the patient.

Prophylaxis.—The study of relapses throws light on the prophylactic treatment of malaria. Up to the present time no unanimity has been reached regarding the prophylactic use of quinin. We still find that daily doses, both large and small, are in use, usually without securing the desired end, and rarely failing to be more or less deleterious to the stomach. It appears, however, that the discontinuous method is gaining ground. A. Plehn modified the method of F. Plehn by giving the medicament every five days instead of every week, and in severe malarial localities this is certainly advisable, on account of the shorter time necessary for the development of an attack in such places. According to his latest statement, F. Plehn prefers to give from one-half to one gram of quinin every week for five or six weeks, then to gradually lessen the dose and lengthen the interval, and to use similar doses after unusual exposure or other probable assisting causes, as necessary. The fact that this has been recommended by Professor Koch[4] will no doubt go far toward extending the use of Plehn's method.

Malarial Hemoglobinuria.—One of the most important subjects at present before the profession is that including the so-called malarial hemoglobinurias and quinin hemoglobinurias. These question are important from the practical standpoint in many parts of the world, though it is probable that the problem is one that really varies in its essential nature in different parts. As examples of the conditions in the eastern hemisphere, we can take the contradictory statements of Koch, the Plehns, Doering and others on the theory and practice of the disease.

Koch was inclined to think, after his first investigations, that the so-called black-water fever of Africa, called by many malarial hemoglobinuria, is a quinin poisoning due to an idiosyncrasy.

Doering[5] has a report in the same volume in which Koch published his report, in which he considers this subject in detail. His experience with malaria has evidently been more extensive than Professor Koch's. Whether he is as trustworthy I do not know. Doering calls blackwater fever "malaria hemiglobinurica." He declares the immediate cause to be quinin in combination with active malarial parasites. In some cases quinin causes the hemoglobinuria in persons whose blood has

been altered by the tropical life, but he has also seen simple malaria, untreated by quinin, pass into blackwater fever. Doering avoids the use of quinin during the existence of blackwater fever, but looks on the use of Plehn's method of prophylaxis as the most certain method for its prevention. While Plehn and Doering avoid the use of quinin, many other African physicians, German and English, use it, seeing no bad effects, but obtaining good ones.

It seems hardly satisfactory to ascribe the results of quinin, reported by so many physicians in different parts of the world, to an idiosyncrasy. The geographical distribution of the cases seems to oppose such a view. That quinin may cause breaking down of red blood-corpuscles in those whose blood is already impoverished by malaria, with or without other depressing factors, may easily be admitted. Even if we admit this, however, the question why this occurs in East Africa and not in Algiers, in Arkansas and not in Italy, is not answered. The germs appear to be the same. A further consideration of this would lead us too far from the present subject.

Hemoglobinuria (and Hematuria) and Malaria in the U. S.—From the titles in medical journals one might suppose malarial hemoglobinuria or hematuria very common in this country. Yet a careful study of the literature gives very little valid evidence that such is the case. Proof of malaria, the finding of the characteristic parasites in the blood, is rarely forthcoming in the works of those who claim the disease is malarial at the time of the hematuria. It is generally conceded that microscopic evidence must be submitted before a discussion of even so simple a process as intermittent malarial fever can be profitably carried on. How much more necessary then is such evidence in a condition like hemoglobinuria. In fact, in the current reports even the ordinary clinical features are not always as clearly presented as one might wish, and in discussions of the pathology the more recent additions to our knowledge are often conspicuous by their absence. One finds the work of Bérenger Féraud quoted more frequently than Bastianelli, while the important observations of the Plehns, Doering and other recent writers seem almost wholly neglected. It is a suggestive fact that, while in Africa the malarial blackwater fever is a hemoglobinuria, in the United States the condition is almost invariably hematuric. In some parts of the country all hematurias are called malarial, just as all neuralgias, all fevers, and many other symptoms are so called. Yet in the South, besides the ordinary hematurias, there is the possibility of numerous cases due to other parasites, neglected as completely in diagnosis as those of Laveran. In some of these districts the patients with hematuria from any cause may easily have a history of past or present malarial infection. This may have an important bearing on the treatment, but does not necessarily entitle the disease the predicate malarial. The profitable inquiry as to the possible relation of past attacks of malaria to the hemoglobinuria, and the careful study of the blood, have been even more neglected than the search for active infection.

The positive study of the so-called malarial hematurias has just begun, and, as was to be expected, statements differ, just as we may readily understand the facts may differ in various cases.

Pending a conclusion, the first thing to do after taking charge of a case of suspected malarial hematuria is to ascertain the possibility of malarial origin or influence, by the history and by exclusion of other possible causes. This is obviously not an easy thing to do. Even outside of malarial regions we find numerous cases of hematuria and hemoglobinuria, the causes of which are difficult, or sometimes even impossible, to discover within a time useful for etiologic treatment.

More important still, and fortunately easier, is it to discover the presence or absence of malaria at the time. Here the blood examination is all-important, and it cannot be denied, impossible as the thing seems, that ability to make the necessary examinations should be expected of those who practice in malarial localities. I say it seems impossible because it is a fact that other similar knowledge, much longer available, is not as generally applied as it should be. One has only to mention examinations of the urine and sputum.

Taking for granted that the precise conditions have been made out by a complete examination, the question remains: What is to be done? I must limit myself to the use of quinin.

If there is no evidence of active malaria, no matter how much there may have been, quinin is not to be used. This truth is still far from being generally accepted. There is still a belief, difficult to eradicate, that quinin has some mysterious properties in all things called malarial. Yet so far as we know, quinin cannot stop the breaking down of red blood-corpuscles, nor the exit of red cells through the kidneys. True it may act as a tonic, in small doses, but there are other drugs, if necessary, just as useful for that purpose.

It would perhaps be safe to lay down the rule that, in a hematuria the malarial nature of which is not known but only a matter of conjecture, quinin in more than small doses will probably do more harm than good.

If there is a malarial infection with active parasites shall quinin be used? Around this question discussion has been more than warm. Both theory and practice have been called in to solve the problem, but the answer seems more remote than ever. A number of facts should be borne in mind. Quinin is often more or less irritating to the urinary tract. It may therefore, especially in large doses, aggravate a local disease of the kidney—malarial in origin—and cause or increase hematuria. In chronic malarias, with active parasites still present, there may be a large number of young and vulnerable red blood-corpuscles. They may be broken down by the circulating quinin and hemoglobinemia and hemoglobinuria result. This is possible, but whether it occurs, or will occur, in any given case has not been proved and can hardly be positively predicted. In the cases in which quinin is said to have done harm the material element has not been demonstrated. On the other hand some of the most capable Southern clinicians deny such an occurrence, and Woldert, who appears to be the only one who has had experience with the microscopic diagnosis in the South, agrees with them. Curiously enough, many who fear to use quinin in such cases use drugs apparently as dangerous, especially turpentin, and claim to get good results.

Even if the quinin can cause or increase hemoglobinuria, it is not logical to give it up without further consideration. Without the quinin a destruction of blood is likely to occur that is often greater than any hitherto attributed to quinin. The development of each parasite breaks up a red blood-corpuscle, if not completely, at least so much so that it must speedily be entirely broken up in the body. This development of parasites may continue a number of days, unless checked by quinin. In some cases it has been noticed by African observers that the hemoglobinuria seems to coincide with the disappearance of the parasites, but this cannot safely be assumed except by the aid of the microscope. Viewed in this way quinin in malarial hematuria may be compared with an operation for the cure of a dangerous disease—

the anesthesia may be fatal. Or, just as quinin may cause so much breaking down of blood that the kidneys cannot functionate properly, so may the anesthetic seriously affect the heart or kidneys, or give rise to pneumonia.

To sum up, the question of quinin in malarial hemoglobinuria must be settled by careful clinical observation and experiment, and statements regarding it must be given credit in proportion to the accuracy with which the observations are made. In the meantime, quinin can be used cautiously, if parasites are present, giving the drug in a form most likely to be absorbed, in doses within the limit of ordinary safety, and stopping its administration as early as the microscope shows this to be proper. A temporary increase in the severity of the symptoms should not alarm the physician. It is not necessarily due to the drug. At the same time that the specific is being given, other methods of treatment must not be forgotten. The quinin is given to check the malaria, not for any particular symptom or complication.

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QUININ IN MALARIA.

THE UNSATISFACTORY RESULTS OF ITS HYPODERMIC ADMINISTRATION.*

BY G. A. FACKLER, M.D.

CINCINNATI.

The application of medical knowledge is most gratifying when it results in accuracy of diagnosis and treatment. In the consideration of malaria we certainly have an opportunity to indulge in such gratification. The clinical picture, supplemented by manifestations on the part of the blood as presented by microscopic examination, furnishes the data for accurate diagnosis. The efficacy of quinin as a curative agent in the treatment of malaria has placed it among the small list of specific remedies. The comparative ease with which we can now diagnose a case of malaria and the confidence with which we can predict its defeat by quinin leaves only the consideration of the best and most reliable method of its administration.

Prior to the summer of 1898 I had occasionally resorted to the hypodermic administration of quinin in the treatment of malaria, but lack of brilliant results failed to stimulate me to the general adoption of this plan. The encouraging reports casually offered by some army surgeons who had resorted to the subcutaneous use of the drug in malarial patients of the Southern camps induced me to employ it in a series of cases which came under observation in the Cincinnati Hospital in the summer and fall of last year. Herewith, then, are offered the clinical facts elicited by a review of twenty cases, confirming the cursory previous observations made as to the unreliableness of quinin administered hypodermically in malaria. Refraining from a complete report of these cases such as would render them proper for publication, I submit an abridged statement of the salient features thereof, adapted to the time limit and your patience. The cases may readily be assigned to one of three classes: Three to the first class, successfully treated by hypodermic injection of quinin; 7 to the second class, successfully treated by quinin administered by the mouth; 10 to the third class, treated ineffectually by quinin hypodermically, but effectually by substitution of quinin by the mouth.

Classes 1 and 2 may be offered in sums total, Class 3 will be treated with sufficient detail to bring out the points that exemplify the object of this report in the most striking manner.

CLASS I.

Cases 1 and 2 were patients presenting all symptoms of double tertian fever, Case 3 a patient with a history of irregular chills and fever for three weeks, and blood examination disclosing numerous crescents and ovoids—a total picture of an estivoautumnal type of malarial infection. In these three cases quinin bisulphate, gr. xv administered hypodermically twice daily, controlled the paroxysms within thirty-six hours, and, continued in gradually decreasing doses for a week, prevented a return.

CLASS II.

Cases 4 to 10, inclusive, were readily diagnosticated as double tertian. In all these cases the daily administration of gr. xx to xxx of quinin bisulphate, usually in morning and evening doses, controlled the paroxysms within twenty-four to forty-eight hours. In none did the daily temperature attain a height above 100 after twenty-four hours of quinin treatment and in none did the temperature rise above normal after seventy-two hours.

CLASS III.

Case 11.—James Scott, admitted Aug. 19, 1898, had paroxysms of chills and fever daily since August 15.

Aug. 19. At 1:50 p.m., temp. 105. Intracorpsucular pigmented and non-pigmented plasmodia found in large numbers.

Aug. 20. At 9 a.m., temp. 98.4; quinin, gr. x hypodermically; at 12 m., chill for twenty minutes; at 1 p.m., temp. 105.6.

Aug. 21. At 6 a.m., temp. 98.8; quinin bisulph., gr. x, at 9 a.m. hypodermically; at 12 m., temp. 105.8, preceded by chill at 11:20 a.m., quin. bisulph., gr. x, at 9 p.m. hypodermically.

Aug. 22. At 6 a.m., temp. 99; quinin bisulph., gr. x, at 9 a.m. hypodermically; 12 m., temp. 104.6, after chill; quinin bisulph., gr. x, hypodermically at 9 p.m.

Aug. 23. At 6 a.m., temp. 99; quinin bisulph., by the mouth, 9 a.m.; 12m., temp. 102.2; quinin bisulph. by mouth at 6 p.m.

Aug. 24. At 9 a.m. and 6 p.m., quinin bisulph. by mouth, gr. x; temp. not over 99, normal throughout succeeding three days during which this treatment continued.

Case 12.—Harry Carr, admitted August 19, had been ill for six weeks, with irregular attacks of fever daily. His daily lowest temperature was about 12 m. varying from 98.2 to 98.8, rising with occasional chill.

Aug. 19. Temp. rose to 103.4 at 6 p.m.

Aug. 20. Temp. rose to 101.2 at 6 p.m.; quinin bisulph., gr. x, hypodermically at 8 p.m.

Aug. 21. Temp. 102 at 5 p.m.; quinin bisulph., gr. x, hypodermically at 5 p.m.

Aug. 22. Temp. 102.6 at 5 p.m.

Aug. 23. Temp. 102.6 at 5 p.m.

At 6 p.m., Aug. 23, and at 9 a.m. and 6 p.m., Aug. 24, quinin bisulph., was administered by mouth. As a result, the temperature never rose above 99. Treatment continued for three days.

Case 13.—George Wilson, admitted Aug. 20, had quotidian chill and fever during the preceding two weeks.

Aug. 20. Intracorpuscular pigmented and a few hyaline plasmodia. Lowest daily temperature, between 6 and 9 a.m., from 98 to 98.6.

Aug. 21. Highest point reached was 102.2, at 6 p.m.

Aug. 22. Quinin bisulph., gr. x, hypodermically at 10 a.m.; temp. rose to 104.6 at 6 p.m.

Aug. 23. Quinin bisulph., gr. xv, hypodermically at 12m.; temp. rose to 104.6 at 6 p.m.

Aug. 24. Quinin bisulph., gr. xv, hypodermically at 12m.; temp. rose to 104.2 at 5 p.m.

Aug. 25. Quinin bisulph., gr. xv, by mouth at 12 m.; temp. rose to 101 at 3 p.m.

Thereafter quinin was administered at 6 a.m. and 6 p.m., in doses of gr. xv, and temperature normal.

Case 14.—Armstrong, admitted Aug. 29, had been ill for six weeks prior to admission. During the first three weeks he had chills and fever on alternate days, and thereafter quotidian paroxysms.

Aug. 29. Found intracorpuscular pigmented hematozoa occupying nearly the whole of the corpuscle. Lowest daily temperature at about 6 a.m., varying from 97.6 to 98.2. Highest point reached was 101, at 4 p.m.

* Presented to the Section on Practice of Medicine, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

Aug. 30. Quinin bisulph., gr. x, hypodermically at 10:30 a.m.; temp. 104.4 at 12 m.

Aug. 31. Quinin bisulph., gr. x, hypodermically at 9 a.m.; temp. 105 at 12 m.

Sept. 1. Quinin bisulph., gr. x, hypodermically at 9 a.m.; temp. 98.4 at 12 m.

Sept. 2. Quinin bisulph., gr. x, hypodermically at 9 a.m.; temp. 105 at 3 p.m., and repeated the dose at 9 p.m.

Sept. 3. Quinin bisulph., gr. x, hypodermically at 9 a.m.; temp. 103 at 9 p.m. Repeated the dose at 9 p.m., and thereafter at 9 a.m. and 9 p.m.; quinin bisulph., gr. xv, by mouth, brought and held temperature at normal.

Case 15.—Chas. Stahl was admitted Sept. 16, with history of irregular attacks of chills and fever during preceding two weeks. Blood examinations were negative until Sept. 19, p.m., when large flagellate plasmodia were found. From Sept. 16 to Sept. 20, temp. varied from 98 to highest between 6 and 9 p.m.—from 104 to 105.4.

Sept. 20. At 9 a.m. and 9 p.m., quinin bisulph., gr. xv, hypodermically; temp. 9 p.m. 104.

Sept. 21. At 9 a.m. and 9 p.m., quinin bisulph., gr. xv, hypodermicaly; temp. 9 p.m. 104.

Sept. 22. At 9 a.m. and 9 p.m., quinin bisulph., gr. xv, by mouth; temp. 99.8 at 6 p.m.

Sept. 23. Treatment continued with temperature normal.

Case 16.—Albert Miers, admitted Sept 16, had onset of present illness the day before admission with chill and fever; lowest daily temperature between 3 and 9 a.m., varying from 98 to 99. Highest temperature Sept 17, at 12 p.m., 103.8; Sept. 18, at 12 p.m., 103.6; Sept. 19, at 12 p.m., 102.2. Blood examination showed intracorpuscular bodies.

Sept. 20. Quinin bisulph., gr. x, hypodermically, at 9 a.m. and 6 p.m.; temp. 102 at 9 p.m.

Sept. 21. Quinin bisulph., gr. x, hypodermically, at 9 a.m. and 6 p.m.; temp. 102.2, 9 p.m.

Thereafter quinin by mouth, gr. x, twice daily, with total subsidence of symptoms; no elevation of temperature over 99.2.

Case 17.—H. Herberg, admitted Sept. 19, with history of chills and fever daily for several weeks. Sept. 20, blood examination showed intracorpuscular pigmented bodies; lowest daily temperature between 3 and 6 a.m. varying from 97.4 to 98.

Sept. 20. Highest point attained 105, at 12 m.

Sept. 21. Quinin bisulph., gr. xv, at 9 a.m.; temp. to 104.4 at 1 p.m.

Sept. 22. Quinin bisulph., gr. xv, at 9 a.m. and 6 p.m.; temp. to 105.4 at 12 m.

Sept. 23. Quinin bisulph., gr. xv, at 9 a.m.; temp. to 104 at 12 m.

Sept. 23. At 6 p.m. and Sept. 24 at 9 a.m., quinin bisulph., gr. xv, by mouth; temp. to 100.2 at 9 p.m.

The same treatment continued resulted in elevation of temperature Sept. 25, to 100 at 6 p.m.; thereafter normal.

Case 18.—Jacob Jauch, admitted Sept. 19, with history of chills and fever for two days preceding admission. Sept. 19, small hyaline intracorpuscular bodies found; lowest daily temperature at about 6 a.m., varying from 100 to 102.

Sept. 19. Highest temperature at 3 p.m., 106.

Sept. 20. Highest temperature at 9 p.m., 106. Quinin bisulph., gr., xv, hypodermically at 9 p.m.

Sept. 21, 22, 23. Quinin bisulph., gr. xv, hypodermically, twice daily; temp. rising with chill each day between 3 and 6 p.m., to 104.8 to 105.5.

Sept. 24. Resorted to administration of same doses of quinin by mouth, morning and evening, and continued this method with following result.

Highest temp. on Sept. 24, 103; Sept. 25, 101; Sept. 26, 99; thereafter normal.

Case 19.—Schwenk, admitted Sept. 21, had chills and fever daily for about two weeks. On day of admission numerous pigmented and nonpigmented intracorpuscular bodies were found; lowest daily temperature at 3 to 6 a.m., from 97.8 to 98.2.

Sept. 21. Temp. at 3 p.m., 105; quinin., gr. xv, hypodermically, at 6 p.m.

Sept. 22. Quinin, gr. xv, hypodermically at 9 a.m and 6 p.m.; temp. at 3 p.m., 104.6.

Sept. 23. Quinin, gr. xv, hypodermically at 9 a.m. and 6 p.m.; temp. at 3 p.m., 104.

Sept. 24. Quinin, gr. xv, hypodermically at 9 a.m.; temp. at 3 p.m. 102.6; quinin by mouth at 6 p.m., and thereafter at 9 a.m. and 6 p.m., with abeyance of all symptoms on Sept. 25.

Case 20.—Selcer, admitted Sept. 21, onset of illness indefinite.

Sept. 22. Numerous crescents and ovoids and some hyaline intracorpuscular bodies were found; estivoautumnal; lowest daily temperature at about 6 a.m., about 99.

Sept. 21. Temp. to 103 at 12 p.m.

Despite hypodermic administration of quinin bisulph., gr. xv, at 9 a.m. and 6 p.m. on Sept. 22, 23, 24, temp. rose to 103 to 104.2 between 9 and 12 p.m.

Sept. 25. Order was changed to quinin by mouth, in same dose and at same interval. Temp. highest Sept. 25 at 9 p.m., 99.4, and thereafter normal.

A general résumé of the 20 cases furnishes the following data: In 3 cases quinin hypodermically was successful; in 10 cases quinin was not successful; in 7 cases quinin by the mouth was successful; in 10 cases quinin by the mouth was successful after hypodermic administration had failed—a total of 17 cases in which quinin by mouth was successful as a curative measure in the treatment of malaria. In only 3 out of 13 cases, in which the remedy was introduced subcutaneously was an abeyance of symptoms secured. This experience was certainly at variance with that reported casually by some of our army surgeons.

It is but natural that we should seek for a rational explanation of this fiasco of hypodermic medication. We were assured of the correctness of the diagnoses, for no cases were designated as malarial unless the blood examinations furnished evidence which would warrant the diagnosis. All compounds of quinin, or better said, all salts of the alkaloid, have a toxic effect upon the malarial organism, and hence a curative action when administered in malarial diseases. The failure cannot be attributed to the compound employed, per se. The beneficial effect of the same preparation from the same stock when given by the mouth dispelled all doubt as to the therapeutic power of that compound. The procedure adopted for injection and the site selected were in perfect accord with the plan followed by most clinicians and observers. Where then was the defect in the inherent curative value of the method? The therapeutic failure of any remedy can not be ascribed to it essentially unless positive evidence of its absorption is furnished. It was a noticeable observation in all of our cases in which hypodermic medication was resorted to that after the majority of injections, the patients complained of pain in the region implicated by the injection. In some instances a distinct deep-seated hardness of tissue persisted for days after the treatment. It is a conjecture, in all probability bordering upon a certainty, that the solution, while dilute, as it must be with the use of the bisulphate, causes decided irritation of the tissues with which it comes in contact. The resultant localized disturbance of the circulatory conditions of the parts involved interferes with the absorptive power of the area and thus the remedy creates a bar to its own absorption.

If the observations thus submitted to you are indicative of the general experience among a larger number of cases with the same or other compounds of quinin we are forced to the assumption that the hypodermic use of quinin in malaria is never indicated except in cases in which stomach and bowels reject the dose ingested or injected. Unless my observations and deductions are erroneous, because of the uncertain action of the hypodermic injection of quinin, its administration by the mouth should be adopted in all cases.

DISCUSSION ON PAPERS OF DRS. DOCK AND FACKLER.

DR. CHARLES G. STOCKTON of Buffalo.—It seems to me the papers are most timely. For some time there has been growing confusion as to the exact place of quinin in the treatment of malaria. Now, in the matter of the time for the administration of quinin by the mouth, as suggested by Dr. Dock, I beg to take exception. There should be no rule of time for all individuals alike; it requires a study of each individual case to determine at what particular time the drug will affect the plasmodium. It depends too upon the primary digestion of individuals. In some instances the effect of the drug is ex-

ercised in the course of an hour. Dolge's method of giving quinin previous to the paroxysm has not met with the expected success.

Cinchonism is found to be more intense if the quinin shows an effect, and yet the paroxysm still comes on. Quinin is said to be difficult of administration; all will not agree with the writer; it is easy of administration. I question the hypodermic use of quinin mentioned by Dr. Fackler; I have had experience during the past year and I have come to the same conclusion that he has reached. In one case there was failure to relieve the paroxysm by hypodermic use of the drug, but the patient was relieved by the administration of the drug by the mouth. In that case, as well as in two others, there happened troublesome abscesses at the seats of injection, which was something I had never seen before. The local irritation probably accounted for the slow absorption of the quinin and the non-relief of the symptoms.

DR. JUDSON DALAND of Philadelphia.—I wish to express my pleasure in hearing the paper and wish to speak in regard to two points. So far as the use of quinin is concerned, my experience has taught me that two things are to be considered—does malaria exist, and is quinin absorbed? Exclusive of hospitals, experience teaches that less than half the cases diagnosed as malarial are truly malarial. I am speaking of the cases that come in the ordinary course of practice, and not the cases that come under close observation in hospitals. I was especially pleased with the statements made in reference to the quantity of quinin to be employed, and also as to the time it should be administered. Personally, I am distinctly of the opinion that the bichlorid of quinin is the preferable salt, on account of its solubility and the fact that the solution is reliable. So far as the dose is concerned, I agree with the statements made by Dr. Dock. As to the time of giving the dose it seems to me that one particular point should be considered, i. e., the time in the life cycle of the plasmodium when it is most susceptible to the action of quinin. In other words, I am inclined to the opinion that the time for giving the quinin is soon after the violence of the paroxysm has passed over. This corresponds to the time that there is a maximum quantity of free ameboid bodies in the blood. It is highly probable that when the malarial parasite enters the red blood-cells, quinin circulated in solution in the plasma could not exert its effects so completely as when the parasite is free in the blood. This particular time accords well with the observations of Dr. Stockton and I am sure that benefit is to be obtained from a preliminary course of calomel. After the paroxysm there is an increase in the absorption of the cinchona salt. It is interesting to know that non-absorption of quinin is a common occurrence.

While observing a case of ordinary tertian intermittent fever the hematokrit showed a loss of 10 per cent. of red blood-cells as the result of a single paroxysm of chill, fever and remission.

Hemoglobinuria is a rare occurrence. I recollect one specimen sent me from Louisiana. Hemoglobin alone was present, but upon examining the sediment, a few shells of red blood-corpuscles could be seen. I also recollect another case in which the albuminuria increased during each succeeding paroxysm of the attack.

DR. F. S. JOHNSON of Chicago.—The absorption of quinin is very uncertain. It is impossible to treat in any other way than by hypodermic injection or by inunction and be sure of your results. I will relate one case as an illustration of this. A man who had been very strong and who became extremely weak, was given quinin by the mouth without effect. Hypodermic injections of large doses of quinin were given, 40 to 60 grains by deep injection, and soon the malaria subsided and the patient got well. He was so weak at the time that it was impossible for him to rise from the bed. The hypodermic injection was made by deep puncture. Quinin given subcutaneously may cause sloughs; but if deep injections be given there will be no sloughs or abscesses if the solution used be sterile. In many cases quinin by the mouth has a different effect from that given in some other way. I saw a lady with well-pronounced intermittent fever, not of severe type. When she took quinin by the mouth she had delusions and hallucinations. She took it several days without effect, but when the fever began to respond to the quinin and the paroxysms became less severe she had dreams. She recognized them as dreams, but one morning she thought that all the dreams she had had were real. The quinin was stopped and the hallucinations subsided, but then the fever returned. I was in a quandry as to what treatment to give. The rectum was irritable, so I could not treat her in this way. She was a highly nervous, sensitive woman and I did not dare to propose the use of this method. I then gave her from 150 to 200 grains of quinin mixed with equal parts of oleic acid and one-third the amount of coca butter, and this was rubbed in daily. The temperature then came down and did not return, nor did she have any more hallucinations. Quinin by the mouth has a different effect from that when given by the skin, by inunctions or hypodermatically. In another case of a returned soldier the quinin was given by inunction; 200 grains were given daily. He could not take the drug by the mouth or rectum, for it would not be absorbed. He was afraid to take the injections through fear of abscesses. He took it by the skin in this way, and his recovery was very prompt.

DR. H. A. HARE of Philadelphia.—It seems to me the discussion of an important subject illustrates one of the most important points. The readers of the papers and the discussers, including myself, are men who may have less opportunity of studying the conditions now discussed than many of the gentlemen in the audience. I think it is rather unfortunate that physicians who have large opportunities credited to them have not done more toward the study of this subject.

What has been said regarding the absorption of the drug is true. I think one of the greatest questions connected with the therapeutics of quinin is regarding the time to give the drug; physicians are not sure of the alimentary canal, whether it is in condition to receive the drug. Quinin is precipitated by the juice of the stomach, and it is often found that it will not be absorbed at all. The use of mercurials and acids as resorted to in the South is exceedingly advantageous. I am inclined to believe that many physicians, not having been trained in the use of the microscope, often make a diagnosis of this disease when malaria is not present at all; I often come across cases illustrating this point. Again the diagnosis is often made of malarial fever, mild in character, which is not malaria at all. I would like to reiterate the fact that where the clinical course is like certain types of malarial fever a blood examination alone will prove the diagnosis to be correct.

It is unfair to Dr. Dock to refer to a certain method as the Gody's method. My experience has taught me that this is the proper time to give the quinin, and I have used it months with great success.

One other point regarding the hypodermic administration of the drug; this is most useless. I make a difference between the hypodermic method and the intravenous injections. There is great difficulty in absorption except in an acid medium. Quinin in the tissues is precipitated by the alkaline juices of the tissues. The quinin is precipitated and is immediately surrounded by an inflammatory exudate and is absorbed like catgut ligature. The drug should be injected into the veins; the medium in which it is carried is a normal saline solution, and it should be injected slowly. There is one important point that physicians should remember; that is that when quinin comes in direct contact with the heart it is terribly depressing; in animals it acts in the same way as in man. In a Newfoundland dog quinin was injected into the veins and the heart stopped at once. Do not forget the point that large doses are depressing to the heart, and may do the patient much damage.

DR. DUNHAM of Cincinnati.—I wish to make a plea for the use of the hypodermic syringe. There is a salt of quinin which is sometimes overlooked, and that is a double salt put up by Merck. It is soluble in equal parts of water, and can be inserted in small quantities between the gluteal fold. This injection will be absorbed, and cases will yield readily if it can be kept out of the muscles, and the inflammation kept down. All cases of malaria need not be treated by hypodermic injection, but only those cases where it is impossible to get quinin into the system in any other way. The great trouble seems to be in finding out when to give the quinin, and whether you have not something else to contend with. There is nothing nicer to give with quinin than calomel or a little acid; I prefer the calomel. The time of giving quinin is very important—that is, the time of getting quinin into the blood. If quinin is brought into the blood at one time it is one thing; but if at another time, it is another. If the malarial organism is surrounded by red blood-corpuscles it is difficult to get the quinin to act upon the organism. If the quinin is introduced after segmentation, good effects will follow. In the tertian or quartan forms you do not get the full effects in the first day; it is best to catch the organisms as they are segmenting. By using the double salt of quinin you can place in the blood your drug at the time it is needed. The pain in using the hypodermic injection is very greatly reduced—almost to a minimum—by using the double salt of quinin, using two parts of water, and by keeping between the deep gluteal muscles.

DR. J. C. WILSON of Philadelphia spoke of his experience in the German Hospital of Philadelphia with reference to outbreaks of malarial disease latent for weeks and months, in soldiers who had served in Cuba and Porto Rico. Many of these cases had stubbornly resisted quinin by the mouth, even

in large doses and administered under most varied circumstances, but yielded to moderate doses by the hypodermic method—in some instances the double salt of quinin and urea being used; sometimes the hydrochlorate of quinin.

With reference to the precipitation of the quinin salts in the alkaline fluid of the subcutaneous tissues our knowledge is somewhat limited. If precipitated it is certainly redissolved and absorbed, as shown by unquestioned therapeutic results. If precipitated under these circumstances, it is equally liable to be precipitated in the blood when introduced into the veins.

The cases of Panama and Chagres fever, at one time common in our coast-wise vessels, usually admitted to the hospital comatose, yielded promptly to large doses of quinin hypodermically and by the rectum.

DR. GEORGE DOCK of Ann Arbor, Mich.—In order to make my paper short I left out all else except that which referred to quinin alone. Individuals differ, and a great deal is often required besides the giving of quinin. Regarding Dr. Fackler's paper, he has given strong evidence of what a number of observers have stated. In all cases of Dr. Fackler's, quinin was given at a time when it was less likely to do good. In regard to the hypodermic injection I only wish to state that the hypodermic method, in my opinion, is necessary in many cases. Deep injections are better than strong injections. If given in the muscles there is less pain and less tendency to the formation of abscesses. In any case the salt of quinin is apt to give pain and to cause abscess; these facts cannot be lightly turned aside.

DR. G. A. FACKLER, in conclusion, wished to be positive that his statement in regard to the method of quinin injection was not misconstrued. In every case the deep injection was resorted to. In no case was an effort made to administer the remedy at a time coincident with a certain phase of the fever, and, yet, to some of our patients it was accidentally given in accordance with the suggestions of Dr. Dock. The question of the proper time for the exhibition of quinin in malaria is still *sub judice* and will probably never be settled to the satisfaction of all. The preceding discussion illustrates the various opinions entertained as to the absorption of quinin. It is universally acknowledged that the conditions of the digestive tract and of the circulatory organs play an important role in the absorption of the drug. The amount absorbed and the period required for this act must vary with the condition of the part into which it is introduced. Hence the utter folly of predicting the positive action of quinin within or at a specified period of time after its administration by mouth or injection. Much more rational is the introduction by either method into the body, of a dose, at stated intervals in the course of the day so as to insure the presence of a therapeutically effective amount of quinin in the circulating media at all times during that day. This plan was followed in all our cases and the results secured were certainly practical illustrations of its efficacy. I desire finally to call attention to the dearth of detailed reports of series of cases treated by the hypodermic injection of quinin and the uncertainty of the value of observations made upon one case by one individual. It would certainly be desirable that those who have made general assertions as to the efficacy of this method in the treatment of malaria should contribute specific reports of their cases to the literature upon the subject.

EXSTROPHY OF THE BLADDER.*

BY C. A. WHEATON, M.D.

ST. PAUL, MINN.

None of the congenital defects of man have elicited a greater diversity of opinion as to etiology, or more difficulty in correction than those affecting the genital extremity. Until a comparatively recent date the deformities of the genitalia of the male and female offspring were attributed to failure in the evolution of the structures which go to make up the distinctive characteristics of sex.

Embryology teaches us that the allantois is the fetal structure from which is derived the bladder and its suspensory ligament; that the urethra is primarily a groove opened below, which gradually advances from the urogenital sinus, and from the imperfect closure of this groove and the imperfect elaboration of this allantoic structure arise the defects which I have selected to here discuss briefly. The latest, and perhaps the best, résumé of this subject is to be found in an article written by F. Tilden Brown[1]. In this he leads us to understand that the etiologic factor in the production of hypospadis and epispadias is practically the same, that "both conditions are due to the rupture of the urethra in consequence of urinary retention by the absence or retarded formation of the glandular urethra."

"The usual theory of epispadias is similar to that which explains hypospadias as due to incomplete or faulty development of the parts affected. Thus, Thiersch regarded the malformation as due to a pelvic closure and division of the cloaca, which was faulty as regards time. Under normal circumstances pelvic closure occurs first, so that the corpora cavernosa, developing in connection with the rami of the pubes, are already agglutinated to the sexual buds before the sinus urogenitalis is pushed forward by the developing perineum. But if the cloacal division occurs before pelvic closure, the two halves of the corpora cavernosa are not united; the urogenital sinus is pushed forward between them, and they unite below instead of above it. This hypothesis evidently depends for its premise on the absence of the symphysis, and, unfortunately for it, the symphysis is not always absent. On the other hand, a number of facts undoubtedly favor the rupture hypothesis, and are quite inexplicable on any theory of defective development. Absence of imperviousness of the urethra leads to accumulation of urine in the bladder and dilatation of that organ; a rupture occurs at a time when the abdominal envelopes are not yet quite perfect, and this rupture may affect the entire urinary sac from the navel down, or only its lower part. So we get epispadias with exstrophy of the bladder, or simple epispadias. Thus, Thiersch has proved, both in the dead and living subject, that the ureters are much dilated in all these cases; he even succeeding in passing a No. 6 English catheter through the ureters into the pelvis of the kidney. Scar tissue also is found all around the bladder opening, as from an unsuccessful plastic operation—distinct evidences of rupture and cicatrization.

"But the most incontestable proof of the correctness of this so-called mechanical theory of the origin of epispadias is found in the cases of intra-uterine healing of exstrophy of the bladder and of epispadias, of which the best case is that of Kuster. Here, in a boy 1 year and 7 months old, an unmistakable scar stretched from the umbilicus on to the dorsum of the penis. In fact, it may well be that the separation of the pubic rami is the direct effect of the same urinary retention that causes rupture of the vesical and urethral walls. Thus, an early rupture of the urethra would give us a simple epispadias with normal symphysis, whereas, if this early rupture does not occur, the symphysis separates; if the urethra now ruptures, we get simple epispadias with absence of symphysis. If both bladder and urethra rupture we get exstrophy of the bladder and epispadias."

It has been unquestionably demonstrated that the excretion of urine is active during the latter months of fetal life, and that the bladder undoubtedly fills and empties itself frequently during that period, and a careful review of the literature of the subject leads me to believe that this is the correct explanation of these peculiar caprices of Nature. It is not my purpose to discuss the causes of these defects; but to submit for your consideration the following cases which seem to me to be of special interest.

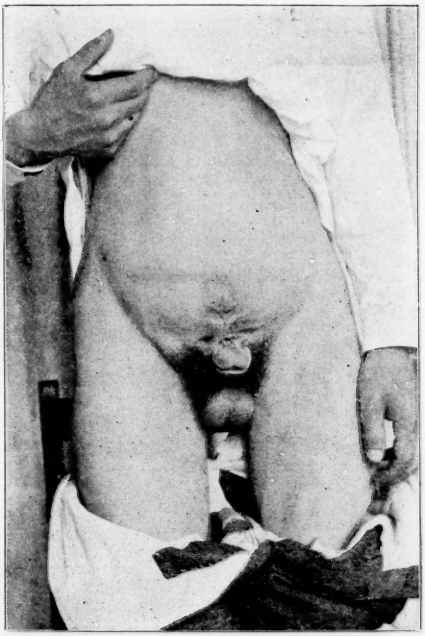
* Presented to the Section on Surgery and Anatomy, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

[1] Disease and Injuries of Urethra; Morrow's "Genito-Urinary Diseases," vol. i.

The case of a Prussian, 23 years old, who presented himself for examination with the hope that I might be able to relieve his hypospadias and correct the incurvation of the rudimentary penis, is of interest. He was of good physique, but with a somewhat effeminate face; just a suggestion of a beard about the cheeks. Stripped, standing erect, with his face covered, he seemed to be a muscular woman. He had a well-developed bust, effeminate shoulders and upper arms. From the navel down, however, he was decidedly masculine. He had masculine hips, masculine thighs and legs; the external genitalia suggested a female vulva, but unusually prominent. When he lay on his back, with thighs separated, I was able to demonstrate a perineal hypospadias; that the structures which resembled the vulva were really the scrotal pouches containing a testis on either side of the median fissure and the urethral opening deep in the

perineum, with a groove running forward to the rudimentary penis, lined with mucous membrane, and which suggested the introitis vaginæ. This young man was masculine in his tastes and voice, and had it not been for the development of the mammæ would have been of no special interest other than that of an aggravated hypospadias. He has no affinities for his own sex, stating that they were entirely confined to the opposite sex. There had never been any suggestion of menstruation; there had never been any periodic bleeding. The mammæ were quite symmetric and the size of those of a girl of ordinary development at the age of 18 years. They were not of unusual size until the age of puberty, and developed at the time when the sexual characteristics became a pronounced feature of the development of the boy. He was then a mixture of the two sexes. It would almost seem that Nature, realizing the imperfection of the congenital development, had supplemented this unusual condition by providing the young man with a mammary development which would be in consonance with his apparent sex. This case, in this light, is unique and worthy of record. I would add that an examination per rectum demonstrated the existence of a prostate and other pelvic structures normally a part of the genito-urinary apparatus.

Another case, a male of 17 years, of American parentage, and fair physical development, came to me for the relief of incontinence, the urine escaping from a penile epispadias of which he had been the unfortunate possessor since birth. The penis presented on its dorsal aspect, from beneath the pubic arch to the glans, a groove lined with mucous membrane which could be followed back beneath the pubic arch so that the finger could be

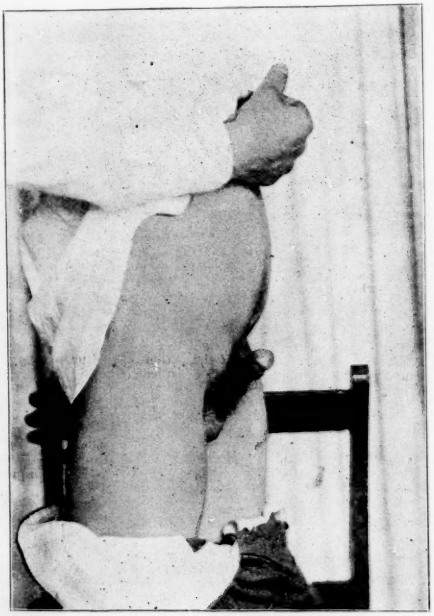


introduced nearly to the neck of the bladder. The prostate seemed rudimentary, but was normal in shape. He was unable to keep himself dry because of the incontinence of urine.

I did not adopt the operation advised by Thiersch, namely, that of establishing a perineal fistula before attempting to close the epispadias; but made a roof to the urethra by bringing down a flap of skin which occupied the crescent-shaped, hairless surface immediately above the arch of the pubis. A trap-door was dissected down and laid along the dorsum of the penis, its epithelial surface being applied to the roof of the urethral furrow, and its lateral margins being let into slits on either side of the prospective urethra and there fixed by interrupted sutures. A catheter was kept in the bladder for a week and the boy kept sufficiently under the influence of opium to prevent erection. About half of the transplanted flap united, and incontinence has been entirely

overcome. The operation was a failure so far as restoring the canal in its entirety is concerned, and will have to be repeated in order that the organ may be of service for procreation. The physician who attended the accouchment at the birth of this child states that the little rudimentary penis was adherent to the abdominal wall and that he separated it from its adhesion by simple traction. These cases are sufficiently rare to justify their being made a part of the literature of this most interesting deformity.

The third case is one of aggravated epispadias with exstrophy of the bladder. This one I operated on when he was 16 years of age. He suffered, as all such unfortunates do, from eczema of the lower abdomen and thighs; was a constant source of offense to himself and everybody else, in consequence of the exposed surface of the bladder and the constantly leaking ureters. There



was a rudimentary penis and a rudimentary corpora cavernosa attaching to the rudimentary public bones on either side, the pubic symphysis being entirely absent. The right testicle was in the inguinal canal; the left undescended and could not be felt. The cutaneous margins of the exstrophy, particularly in the median line, presented a peculiar cicatricial appearance "as though an unsuccesful plastic operation" had been made, as mentioned in the foregoing portion of my paper, but strangest of all in this boy's case, was the absence of a navel. The allantoic structures had evidently failed to be continued to the normal point of attachment for the urachus, and the umbilical cord had emerged from the opening immediately above the exposed bladder. I dissected a quadrangle of skin free, the long axis of which was transverse to the vertical axis of the perineum, leaving both ends attached. I pulled the rudimentary penis down beneath this bridle and fixed it by sutures. I then turned down a crescent of skin from above the bladder, inverting it, thus turning the epithelial surface inward. Then flaps of sufficient size were brought up from the groins, rotated on their pedicles and brought in contact with the raw surface of the crescent brought down from above. He recovered from the operation, which was made some five years ago, and has been made infinitely more comfortable by it. Of course, he has incontinence, but the urine is discharged only through the one opening, i. e., the urethra which I made, and he is able to direct it into a rubber urinal, which keeps him dry.

All these cases presented, in the immediate vicinity of the defects, the peculiar condition of skin referred to above, suggesting old cicatrization. There was comparatively little hairy development on the surface of the last boy's abdomen at the time I turned the crescent down to make a roof for the bladder. When I saw him a few days ago he told me that he was suffering from the presence of phosphatic deposits in and about the bladder, and on examination I was able to detect the presence of numerous little stalactites which had their origin from the deposits of urine salts on the hairy projections from the bladder roof.

In the case of epispadias without exstrophy of the bladder, the urethra terminated in a funnel-shaped opening beneath the pubic arch. The bladder was continent until the quantity of about eight ounces of urine was overpassed, when the incontinence commenced. The boy, while wet all the time, if asked to urinate, would pass about eight ounces of urine. The urine emerged from beneath the pubic arch in explosive fashion, and there was absolutely no ability to direct it into any receptacle. Since the operation he has been able to direct it with comparative accuracy. This condition of affairs demonstrates that, while the repressive influence of the deep urethra was deficient, it was not entirely wanting, inasmuch as my having been able to extend the urethra about an inch beyond the pubis has done away with incontinence and has put the function of the organ practically within his control.

EXSTROPHY OF THE BLADDER.*

BY DUDLEY P. ALLEN, M.D.

Professor of Surgery, Western Reserve Medical College; Surgeon to Lakeside Hospital; Member of the American Surgical Association.

CLEVELAND.

In presenting to this Association a case of exstrophy of the bladder, it is not my purpose to enter on a prolonged discussion nor into a lengthy historic sketch of the various operations which have been proposed for its relief. I wish simply to present a case on which I have operated, that it may be added to others operated on in the same way, and thus bear evidence of the success of this method of treatment. It may be in place, however, in presenting the case, to speak very briefly of the various operations which have been introduced for the relief of the malady, together with some of the objections to them.

All methods which have been introduced for the formation of a covering for the exposed mucous membrane of the bladder have two objections. The first is that, although by covering the exposed mucous membrane they preserve it from external irritation, they do not prevent

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flammation of the conjunctiva of one eye. The doctor was a bit suspicious and asked that the mucopus from the inflamed eye be examined microscopically. This being done, gonococci were found and silver at once instilled into the eye. The conjunctival inflammation disappeared rapidly, but the urethral trouble developed into a most obstinate case of gonorrhea.

DR. H. ISAAC JONES said that the question was a very broad one and could be looked at from many points of view. Ocular disturbances from general internal diseases are very common, and it behooves the oculist to be a good general practitioner, at least in so far as ability and training go. In his opinion the oculist had insufficient knowledge of general diseases; the adoption of a specialty should be at the latter end, rather than

Pages 259-290 missing.

rance of the true condition on the part of the optician. The man who is sent to an optician for refraction by his physician when he is suffering with dormant glaucoma, will not feel kindly disposed to that doctor when he finds himself blind and knows that it is largely owing to his physician's fault. So, too, with the patient who has progressive myopia, and is handed over to the tender mercies of the optician for a refraction which will mean ultimate blindness.

Alumni Association of Medical Department of University of California.

LEUCOCYTOSIS: ITS HISTOLOGY AND PATHOLOGY.

DR. H. A. RYFKOGEL discussed this subject and first reviewed the ground so successfully turned over during the past few years, and mentioned the advances in the study of the blood permitted by improved methods of staining. By means of these new stains the fact that five distinct forms, or better stages, of the white blood-corpuscle, or leucocyte, could be recognized. Of these five forms—the young, the older, the full-grown or adult cell, the eosinophile and the myelocyte, the third or adult cell, the common leucocyte, is the most common. It may vary somewhat in size and shape, and its nucleus may vary

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DR. JOHN WAGNER had much intercourse with specialists, and in his experience benefit was always to be derived from such family relations. A case of malingering, after a trifling accident from a car, was fresh in his mind, and in this case the examination and the testimony of the oculists defeated the dishonest attempt of the plaintiff to secure damages. In his opinion gonorrheal ophthalmia was not so common as generally supposed. In a somewhat extended career as a general practitioner seeing many cases of gonorrhea and doing a good deal of confinement work, he had met with but one case of the affection.

DR. V. H. HULEN said that the general practitioner and the oculist should always be on the best of terms, but he knew that this was not always the case, for some physicians were in the habit of consulting opticians rather than referring their patients to a regular oculist. It might be urged, he thought, by these physicians, that they did so for the reason that their patients could not pay the oculist's fee. In his opinion no oculist would refuse to refract or examine any case referred to him by a general practitioner, for nothing, if the physician stated the patient's position and his inability to pay.

DR. M. KROTOSZYNER thought that the oculist was indebted to the general practitioner to a large extent, not only for patients but often for diagnosis. He mentioned several cases in point, where the correct diagnosis of a case that had been treated by an oculist for some time was eventually made by the general practitioner. One patient of this sort had been treated by an oculist, stated Dr. Krostoszyner, for some time, but without benefit. On consulting him he suspected kidney affection, and found, on examination, casts in the urine and an albuminurie retinitis. This should have been diagnosed by the oculist at first. He urged the necessity for the general practitioner to study the use of the ophthalmoscope. In many cases it is absolutely essential that the fundus of the patient's eyes be examined, and unless he is able to make such an examination, the general practitioner is often left in ignorance of the true condition of his patient. He recalled a patient who had consulted him some time previously, giving a history of symptoms which he thought purely hysteric. After a prolonged course of treatment the patient did not improve. One night she died very suddenly, and on post-mortem examination a large glioma near the ophthalmic tract was found. Had an ophthalmoscopic examination been made early in the course of the treatment, the true diagnosis could undoubtedly have been made.

DR. PHILIP MILLS JONES called attention to the reverse of the picture painted by Dr. Krotoszyner, by recounting the history of a patient who had been referred to him by a general practitioner a short time ago. The patient, a young woman, was sent for examination, with the statement that her sight had been failing for a short time, and the condition was probably a serious one. Vision was found to be greatly reduced, but careful inquiry elicited the fact that the patient had but just recovered from an attack of diphtheria. Three or four weeks' good tonic treatment with a trip to the country entirely relieved the eye symptoms. In his opinion there could be no question that the general practitioner who was guilty of sending his patients to the optician for refraction was doing not only the oculist and the patient great wrong, but was also injuring himself, for sooner or later many of these patients find, when too late, that they have lost their sight through the ignorance of the true condition on the part of the optician. The man who is sent to an optician for refraction by his physician when he is suffering with dormant glaucoma, will not feel kindly disposed to that doctor when he finds himself blind and knows that it is largely owing to his physician's fault. So, too, with the patient who has progressive myopia, and is handed over to the tender mercies of the optician for a refraction which will mean ultimate blindness.

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The difference between leucocytosis and leucemia was touched on and he stated that in leucemia the myelocyte first appears, it not being found in normal blood; it persists and later the neutral leucocyte appears in increased numbers and also remains in larger number than normal. In true leucocytosis this form of the white cell does not appear, but the other forms are found, especially the third, or neutral form, which is found to occur in greatly increased numbers, the amount of the increase depending on conditions of disease infection and individual resistant power of the patient; the increase may be from 10,000 to 100,000. It is the increase of this third form of the white cell which is of diagnostic importance in many affections, and while the other forms of the cell may be also increased, especial value is placed on the count of the adult leucocyte which stains with the neutral stain. The relation between the virulence of the infection and the resistant strength of the patient is a peculiar one, and of much importance in the diagnosis as well as the prognosis. If the patient be particularly strong and resistant and the infection virulent, there will be an unusually marked increase in the number of white cells found in the blood. The indication is that of a particularly fierce struggle going on between the infection and the individual's resistant power. If, on the other hand, either the infection or the resistant strength be out of all proportion to the other factor in the problem, the increase in the number of white cells may not be very marked. Where the clinical symptoms show the infection to be severe and the blood count shows but a trifling increase in the leucocytes, the diagnosis is not so good as when the number of white cells is larger, for the count of the cells shows that resistant strength of the patient is not great, and that the disease may conquer more easily than if the strength of the patient more nearly equaled the strength of the infection. In this way the blood count may be used as a prognostic aid of no mean value. Leucocytosis is found to be present in all infectious diseases, save typhoid, unless in the presence of an abscess or peritonitis—tuberculosis and malaria. It may occur in these cases if there is also a complicating condition which would give rise to an increase in the white cells, as in the exceptions to typhoid fever, above cited. In a case of supposed appendicitis, for instance, if the blood count shows a largely increased number of white cells, it is safe to presume that pus formation has commenced.

The various theories suggested to account for the increase in the number of white cells in leucocytosis were next reviewed, the conclusion he seemed to accept being that recently advanced to the effect that in the system were acting two tendencies or forces, one a repellant tendency, by means of which the white cells are led to accumulate in the deeper viscera, the other being an attractive tendency which seems to draw the cells to the periphery and away from the deeper organs; there is also an actual increase other than the apparent increase due to the aggregation of the cells in the superficial circulation.

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SATURDAY, JULY 29, 1899.

GENERAL PATHOLOGY AND THERAPY OF DISTURBANCES OF CIRCULATION IN ACUTE INFECTIOUS DISEASES.

At the height of infection the resulting disturbance of the circulation is clinically characterized by softness of the pulse and diminution of the blood pressure, not necessarily connected with feebleness of the heart's action. These changes are to be separated from those which develop in the further course, the defervescence of, and convalescence from, the febrile disease, when the heart may be dilated, abnormally rapid or slow, occasionally irregular.

No characteristic anatomical changes are necessarily connected with the first kind of disturbance. In many cases, especially in diphtheria and typhoid fever, there are, it is true, important parenchymatous changes in the heart's muscle fibers; in other infections, with acute clinical symptoms, such changes are entirely absent. It is quite generally accepted that an acute infectious myocarditis—Romberg—accompanies the symptoms of cardiac weakness characteristic of convalescence from many acute infectious diseases.

Experiments bearing on the nature of the mechanism of the circulatory disturbances at the height of infectious diseases have not as yet been such that the results could be applied to the conditions in the human patient.

In the "Festschrift fur Feier des 100 jahrigen Bestehens der Medicinischen Klinik zu Leipzig,"[1] this problem is considered quite extensively by Romberg and associates. In order to reach some insight into the action of infections on the circulatory system, they inoculated rabbits with pure cultures of the pneumococcus, the bacillus pyocyaneus, and the bacillus of diphtheria. The circulatory phenomena were studied carefully and at various stages the animals were sacrificed and carefully examined. These three micro-organisms were selected because of their pathogenic actions being quite similar in man and in rabbits; these bacteria also represent the principal forms or types of bacteria invasion.

Without entering into details, which would be quite impossible here, it was found that the pneumococcus, the pyocyaneus, and the diphtheria bacillus affect the circulation of the rabbit by paralyzing the vasomotor center in the medulla. The vasomotor paralysis leads to a fall of the arterial pressure and disturbances in the distribution of the blood in the body; the splanchnic vessels are overfilled, the vessels of the skin, muscle and brain underfilled. The heart need not necessarily be involved in the above disturbances; secondary degenerative changes may develop in consequence of insufficient blood-supply of its flesh; embolic pyocyaneus abscesses would enfeeble the heart's power, and the slowing and irregularity of the pulse observed in pyocyaneus and diphtheria infection are the result of the direct action of the infection of the heart's muscle. Romberg and his collaborators believe that these results are applicable to human pathology because of analogy.

The action of the human heart is not always enfeebled when the pulse is weak. At the height of acute infections the paleness of the skin, the drawn expression, the coldness of the extremities are often marked. Dyspnea, cyanosis, passive congestion and other symptoms of heart weakness, such as dilatation of the heart, are not necessarily present. Hence vasomotor paralysis accounts well for the most marked circulatory symptoms of the period of intense infection. Not heart weakness, but vasomotor weakness, not cardiac paralysis, but vasomotor paralysis, is the principal cause of the circulatory failure in acute infectious diseases. At the same time the importance of secondary and complicating changes in the heart's muscle remains unquestioned, especially in the later changes and in the period of convalescence.

Naturally the development of circulatory failure forms one of the prominent therapeutic indications in the acute febrile diseases. Assuming, as indicated above, that vasomotor paralysis plays an essential role in the productions of the enfeeblement of the circulation in the acute critical stages, how is the physician to best meet the threatening vascular paralysis?

Passler contributes an experimental investigation toward the solution of this important problem. The course of the disease in the infected rabbits—pneumococcus and bacillus pyocyaneus— was carefully watched until symptoms of fall of vascular tonus appeared, when different medicines were administered and their effect on the blood pressure noted. It was found that digitalis, by its support of the heart, for a time only exercises a favorable influence on the pressure. Subcutaneous injections of ether and intravenous injections of alcohol or cognac were without much, if any, ef-

[1] Deutsche Archiv. f. Klin. Med., 1899, vol. lxiv.

fect. The action of vasomotor stimulants was much more favorable than that of heart tonics. The best results as to vasomotor stimulation were obtained by the combined use of caffein and coriamyrtin; their influence was stronger, of longer duration and more constant than that of camphor. Strychnin and ergotin increased the pressure only in fatal doses. Infusion of salt solution appeared to be harmless and of some favorable influence. How far a similar human therapy will yield like results must be left to clinical observations.

In no case were any of the substances used in the experiments able to maintain intact the function of the vasomotor centers for any length of time. Clinical experience has shown that in human infections the dangers to be avoided may be transitory; if success crowns the effort to support the circulation during the critical period, it is possible that life may be maintained until the infection has passed its course.

While death during the height, or the acute period, of diphtheria infection may be attributable to vasomotor paralysis, the much-feared sudden post-diphtheritic death depends on other causes. According to the studies of the Leipsic clinic, as presented by Hallwachs, the last mentioned form of death depends on myocarditic changes. These changes usually develop after the acute period of the infection, but they may complicate the vasomotor paralysis. Similar events may occur in other infectious diseases. In diphtheria Hallwachs observed that the severity and the course of the clinical symptoms—changes in the cardiac rhythm, slowness and irregularity of the beat, feeble heart's action—corresponded closely with the degree and stage of development of the anatomic process—degeneration of the muscle fibers, round-cell infiltration, connective-tissue formation. The myocarditis begins as early as in the second week of the disease and may rapidly reach a dangerous extent; in favorable cases healing results, sometimes leaving no evidences of the changes, at other times scars and diffuse sclerotic areas. Here we have a striking example of the second possibility in which an infection may injure the circulatory system, namely by the production of an anatomic disease of the heart muscle, but it is to be emphasized that this occurs after the acuteness of the infection has subsided.

RECRUDESCENCE OF BARBARISM.

In the old barbaric days, while physical prowess was the chief quality that determined the survival of the fittest, it is in evidence that moral cowardice, as shown in treachery, assassination, and the torture of the defenseless, was the rule rather than the exception. At the present time the revelations of moral turpitude in France, coupled with the clear evidences of savage disposition, make it plain that but a brand is needed to light the fires of another Commune and to initiate a fierce civil and religious war. The Dreyfus case is but a humiliating picture of moral cowardice from the beginning to the present stage. In our own country, to the thoughtful, who must by no means be confused with the pessimistic, the signs of this form of degeneracy are all too evident. The signs are most obvious in our crowded cities where the environment departs farthest from nature and where, by close association of the criminal with the ignorant, lawlessness readily assumes the contagious form. These remarks are prompted by the terrible scenes enacted of late during the street-car strikes in various cities. The degenerate cowards, who operate under cover of darkness, have no compunction in endangering and even taking the lives of innocent men, women and children, so long as their insane desire for vengeance of real or supposed wrongs is satiated by attacks on the inanimate property of the companies. There have lately been scenes enacted on the streets of New York, Brooklyn, Cleveland and other cities that would have caused thrills of joy to run down the yellow spine of Robespierre. Cars have been stoned and blown up with high explosives, the pillars of elevated roads have been blown out, and many blameless human beings have been disabled by overwhelming assault of numbers, by direct injury from explosions, and by the terrible nervous shock resulting in those of delicate nervous organization from unwitting presence or participation in these tragedies. Because our country receives in its steady tide of immigration a constant proportion of the degenerate and unsuccessful from the lowest parts of the most unruly populations of Europe, a good part of this violence and crime may be laid at the doors of others than native-born Americans. Perhaps we should also not forget that this class, being accustomed from childhood to have the first sign of rioting on their part met with the stern hand of a well-trained military, misses the habitual repression in the proverbial laxity of American officials charged with the preservation of domestic peace.

But there are other evidences of native cowardice which can not thus be readily shifted on the backs of convenient Europeans. In what city paper can it not daily be read that some luckless individual has been run down by the reckless "scorching" bicycler, who in abject cowardice jumps on his wheel and flees ignominiously, leaving others to repair the damage he has done and "some person unknown" to bear the blame? So it is with that driver of horses who runs down the bicyclist or pedestrian. Usually the papers say that he whipped up his team and disappeared before he could be identified. Among our politicians courage is rapidly becoming the rarest of all virtues. Success is the all-important goal. If incidentally success may be attained by seeming to evince moral courage, there will be a show of it; but if the contrary holds, no thought is given to its absence. The thoughtful can supply endless and more apt illustrations of this unfortunate tendency to cowardice in our national life. Pessimism is, however, far from being the mainspring of these remarks. There is happily, even in the midst of this wave of turbulence and degeneracy, clear indication of the rise of a better spirit, or to speak more correctly there is hope that courage

is again becoming popular and reappearing brightly from under the cloud behind which it has been so darkly hidden. The popularity of the writings of Rudyard Kipling, that so often paint in bright colors courage and the other manly virtues, is a highly encouraging sign. Of still greater significance and of great hope for the future is the undoubted popular admiration for the two chief heroes of the late Spanish war, who beyond all doubt clearly exemplify to the public mind the combined virtues of physical prowess and moral courage. This popular worship of honesty and bravery can not do otherwise than give rise to healthier ideals of private and public virtue. The ignorant can only be reached through the emotions, with them reason per se is powerless. Admiration and reverence for real heroes have always marked the best that is in the Anglo-Saxon. Hero worship is not indeed an unalloyed good, but in the present condition of depraved social and personal ideals it may prove to be of immense utility in the development of our American life toward purer goals. In any event its simple existence shows the persistence among us of a great solid substratum of the keen common sense that has kept our race from so many of the pitfalls that have beset the path of the other European peoples. While it is not to be expected that the uncultured can ever admire the abstract virtues of courage and manliness, it is always possible for the personification of those qualities, which mean so much for social stability, to become a popular idol. Therein lies much of hope for our national evolution.

While the ever-present soldier of Europe is little to be desired among us, it is on the other hand true that we as a people are much too lax in dealing with violence. Even as corporal punishment is not infrequently necessary in the correction of the waywardness of childhood, so it is best that mob violence should always promptly meet the stern hand of the force of the law-loving classes. We must never forget that a large portion of any people are still, at best, but in a stage of advanced childhood, and can not be dealt with as can the fully developed man. True courage is the greatest of all virtues because its existence presupposes the possession of nearly all others. Let us insist that our teachers shall constantly instill in the developing minds of the children of our nation a reverence for manliness even were it, as it is not, at the expense of intellectuality.

PSYCHIATRY AND SENSATIONALISM.

"How Shall We Instil Correct Ideas of Insanity into the Public Mind?" is the title of a paper announced to be read before the coming meeting of the British Medical Association. This is a question that remains to be answered here as well as in Great Britain. There is no lack of desire for information, but the only kind that seems to be absorbed is the imperfect and erroneous, and the more erroneous and imperfect the more readily it is apparently absorbed. The problem of how to enlighten the public is therefore a difficult one, even more so than many other medical problems in regard to which the public takes an interest. A description of an asylum will be more readily believed if it is portrayed as conducted on the plan of an ill-managed poorhouse, than if facts are stated as they really are. The same is true as regards insanity itself. There is no statement too extravagant to be accepted by the laity, and even plain truths, plainly told, are too often accepted in a distorted form. There is such an opportunity for sensationalism that newspaper reporters in particular are rarely able to keep their imagination in restraint and the average literature they produce on the subject is about as thoroughly untrustworthy as it can well be. The physician who unguardedly allows himself to be interviewed on any remarkable incident or phase of the subject is liable to have to repent it, and this is well illustrated by a recent occurrence in New York. The Sunday edition of the *New York Herald,* June 11, contained a long article purporting to give the opinions of Dr. Van Gieson of the New York State Pathological Institute, and his conclusions that the day of asylums is nearly past and that they are to be replaced by pyschopathic hospitals which are to treat insanity in its beginnings and thus forestall the necessity of these accumulations of human misery. The article implied the claim for Dr. Van Gieson and his assistants that this great advance would be due to their labors, which were especially illustrated by a case recently under their care and the publication of which is to make a profound sensation in the medical world, and to revolutionize present systems of the treatment of insanity.

The case itself as described in the *Herald* is not a remarkable one to an alienist either in its symptoms or its outcome, though one well suited for a sensational write-up by an active reporter. While less elaborately studied and reported, more or less similar cases have often been successfully treated in ordinary hospitals for the insane. They are only exceptional enough to afford no basis whatever for such generalizations as are made in the article referred to. Insanity is not proved curable by one such case any more than it would be proved incurable by the occurrence of a case of paresis, were the latter actually as rare as it might seem to be from the statistics of fifty years ago. As for such remarks as those attributed to Dr. Van Gieson by the reporter: that "insane asylums will become almost obsolete;" that the more perfect and effectual methods used in the case of Rev. Mr. Hanna "will revolutionize the whole system" of psychiatry; that they "mark the pioneer departure from the old school and the establishment of a more logical and perfect system for the treatment of the insane," we would prefer to assume that he never uttered them any more than that he characterized workers like himself as "psychopaths," though that is inferable from a passage in the same quotation marks. It would seem eminently proper, nevertheless, for him to make some public repudiation of the statements here credited to him, but though we have been watching for

something of the kind, it has not yet come under our observation. It is sometimes a question whether silence is the best policy in such a matter, but it is generally safest for the party involved to give the benefit of the doubt to an open declaration of the unauthorized misstatement of his remarks.

Even if through want of caution there had been something said that might be thus misinterpreted, the better course would be to admit it and make the correction. As it is in this case, the uncorrected impression given the public thus far is that the workers in the New York Pathological Institute by this one cure have made the great discovery of the age in the treatment of insanity, and are willing to publish it in this sensational form in a lay journal. The use of alleged quotations from Dr. Van Gieson, implying all this, and necessarily with it a disparagement of his fellow workers in psychiatry, makes the appearance still more unfortunate and the more imperatively demands some explanation. And without such explanation the inference is justifiable that eminent ability as a pathologist is perfectly compatible with gross ignorance of clinical psychiatry and a condemnable ethical recklessness.

SCHENK'S THEORY IN PRACTICE.

A Chicago chemist has been trying Schenk's rules for the production of sex, with what he considers a successful result. He and his wife desired a male child, and the expected infant's sex turned out accordingly. Considering the fact that the chances of this being the case were about 104 to 100 in the natural order of events, this case seems hardly conclusive, but it appears to have excited enough local interest to call in the reporters and bring out one or two interviews with physicians, who are judiciously noncommittal. If important succession or even dynastic contingencies depended on this birth, it might have received less attention, and perhaps we may consider it an evidence, gratifying rather than otherwise, of the popular interest in a scientific theory.

RECIPROCITY IN MEDICAL LICENSURE.

State medical examinations should be so conducted that the license granted by the examining board of one state, to practice medicine within the boundaries of the state, should carry with it, under proper supervision and scrutiny, the license to practice medicine also in other states. A step in the fulfillment of this desired end has recently been taken in Delaware, where the medical council will hereafter, in compliance with an amendment to the state medical law passed by the last legislature, recognize the certificates of license to practice medicine issued by the New Jersey State Board. It is to be presumed that like legislation has been or will be enacted by the State of New Jersey. The organization and administration of state medical examining boards has accomplished much good, and the time has come for a national medical examining board in order that those who have qualified in one state and desire to remove to another, or to others successively, need not be compelled to submit to examination with each change of residence.

THE AMERICAN VOICE.

The American voice is a common subject of criticism, though the critics are to a great extent guilty of the fault of estimating the whole by a part, and that it may be only an insignificant fraction. Taking as its text a paper by Dr. John W. Farlow, read before the American Laryngological Association, the *British Medical Journal* indulges in some characteristic remarks on the "mangled and outraged" English tongue in this country, and the bad habit of speech "which will never be corrected because patriotic Americans look upon it as one of their national institutions." We should infer that the editor has had but little intercourse with the better class of Americans, or that he has been a very poor observer and a rash and superficial generalizer. Admitting all our faults and that we have, perhaps, as a nation, a higher-pitched and less agreeable speech than the best English practice, and that there is abundant room for improvement, we can honestly deny the greater mangling and outraging of the English tongue here than in its native seat, or that we patriotically look on any of our bad habits as a national institution. The editor of the *British Medical Journal*, in indulging in such assertions, is cultivating a bad habit of writing, which is worse in its way than one of speech. The peculiarities of the American voice are probably largely due to climate, but they are also to be found in certain parts of Great Britain. Before the War of 1812, when British men-of-war were impressing alleged English seamen off American merchantmen, it is traditionally reported that many a characteristic Yankee twang was claimed as proving its owner a Cornishman. There may be in it something hereditary after all, just as many of our alleged Americanisms are proved to be only archaic English of Shakespeare's or Cromwell's time.

WOMEN'S CLUBS AND PATENT MEDICINE.

That the disgraceful, immoral and disgusting advertisements of patent medicines and appliances for the alleged cure of diseases peculiar to women have been allowed to go on without protest on the part of the women themselves is astonishing. That the claims made by advertisers of this class of nostrums are false is probably not easily recognized by women, but their indecency certainly is plain enough. We are pleased to see that at least one of the women's clubs of the country has had the courage to take action in the matter, even if it goes no farther than to pass resolutions. We gladly give space to these and suggest to our readers that they call the attention of the "clubwomen" among their patients to the action of the women of Worcester, Mass., as contained in the resolutions passed by the Worcester League of Unitarian Women:

Resolved, That the Worcester League of Unitarian Women observes, with regret, the increasing offensiveness of advertisements of proprietary medicines claiming to cure the special diseases of the sexes. We consider them a hindrance to the work of social purity.

Resolved, That we appeal to respectable journals to combine in refusing all medical advertisements which contain indecent details of diseases.

Resolved, That we urge self-respecting women to condemn these printed indecencies, to avoid correspondence with firms which so offend, to withhold patronage

and to influence others against dealing with them, whatever the merits of the remedies they offer.

Resolved, That we request the press generally to publish these resolutions, and urge women's clubs throughout the land to take similar action, in the hope that by concerted effort we may secure redress of a great wrong, and overcome a mighty obstacle to moral progress.

CYSTICERCUS OF THE FOURTH VENTRICLE.

According to Hensen[1] cysticercus cysts in the fourth ventricle may cause the following anatomic changes: Extensive proliferation of the ependyma and marked internal hydrocephalus in consequence of closure of the sylvian aqueduct and the foramen of Magendie, as well as compression of the vena magna galeni; no changes are produced in the immediate vicinity, except those due to general compression. There are cases which run their course without any symptoms, but more frequently there develop evidences of increased intracranial pressure; headache, vomiting, dizziness, convulsions, enfeebled visions—all due to the internal hydrocephalus. Occasionally focal symptoms develop: on part of the medulla diabetes; referable to the cerebellum and crura cerebri, such as marked dizziness, cerebellar ataxia, indications of forced movements and positions. The kind of headache and the position of the head may point to the localization of the lesion in the posterior fossa. The features especially peculiar to cysticercus cyst of the fourth ventricle are the intermittent course and the rapid, eventually fatal exacerbation of the symptoms on account of its being free and spontaneously movable. In Hensen's own case the diagnosis lay between tumor of the cerebellum and hemorrhagic pachymeningitis. In all likelihood only a probable diagnosis of cysticercus in the fourth ventricle can ever be made during life because the general symptoms force those peculiar to the cysticercus into the background. Intermittent course and sudden death on account of paralysis of the centers of respiration may lead to correct diagnosis, although after death. It will be recalled that in the case of cysticercus cellulosæ of the brain and spinal cord, reported by Diamond[2], the epileptoid symptoms were referred to the irritation of the cysts.

[1] Deutsch Arch. f. Klin Med., 1899, 64, p. 635.
[2] Journal A. M. A., June 17, 1899.

RETENTION OF LIFE.

The possibility of the retention of life and consciousness for any time after complete severance of the body above the hips, has not been much raised in medical literature, and naturally observations of such an occurrence are rare. Not long since there appeared a sensational paragraph in the newspapers in regard to a young man surviving hours after having been cut in two by a train. As our confrère, Dr. Gibbon's name was mentioned in connection with the case, we wrote him in regard to it, and received the following report

CHARLOTTE, N. C., July 18, 1899.

To the Editor:—The patient, a young man of about 20 years, from the western section of North Carolina, attempted to board a passenger train in rapid motion. Losing his hold he fell across the rail, and the wheels of several trucks passed over his body, completely crushing the pelvis and lower portion of the abdomen, and the right arm above the elbow. The accident occurred at night, about twenty miles north of Charlotte, and the unfortunate man lived about thirty minutes after reaching this place, surviving his injuries about one hour. When seen by the writer, in a crowded passenger station, the man was perfectly sensible, answered all questions and complained bitterly of thirst. His face was expressive of the greatest anxiety and restlessness, and he was entirely pulseless. There was no hemorrhage, although the mangled muscles of the lumbar and gluteal regions hung from the side of his cot.

The situation being unfavorable for a minute examination of the extent of his injury, I am unfortunately unable to confirm what was afterward told me by the trainmen, that the lower extremities were completely severed at the pelvic brim, from the remainder of the trunk. The undertaker has also assured me that he placed first the upper portion of the body in the coffin and then the legs attached to the pelvis. My own examination of the man, while living, however, showed that the wheels of the car had passed directly over the lower part of the abdomen, of course crushing everything to pulp, though I did not suppose at the time that the section of the body was complete. I have no reason to doubt, however, that such was the case, and greatly regret that I did not insist on a removal of the body and a post-mortem inspection of the injury.

Very truly yours,
R. L. GIBBON, M.D.

Other instances have been reported where a few minutes were stated to have elapsed between complete severance of the trunk and death, but this interval is the longest we have seen as yet reported. A crushing injury such as is produced by being run over by car wheels may possibly so occlude the blood-vessels as to prevent too extensive hemorrhage at once, and if collapse and death do not at once occur, life may continue until the slightly later effects of the injury have appeared. Such cases, however, rarely survive long enough to come under medical observation. As Dr. Gibbon says in his letter, accompanying the above report, it makes really little difference whether the parts were completely severed or still held together by shreds of tissue, but the sensational character of the accident depends on the former being the case.

GENERALIZED VACCINIA OF ERUPTIVE TYPE.

There is yet wanting unanimity of opinion as to the exact relation between smallpox and cow-pox, and the question has not been decided whether the two are expressions of the same disease modified by the soil in which they are implanted, or are really distinct diseases. However this may be, it is certain beyond peradventure that inoculation of human beings with cow-pox affords protection from and does not give rise to smallpox, and while vaccination is occasionally attended with noteworthy constitutional symptoms, it is rarely accompanied by any other than the local exanthem. Cases have however, been placed on record in which vaccination was followed by a generalized eruption, and only recently Tyson reported such a case to the Philadelphia Pediatric Society. A most striking instance of the same sort has also been reported by D'Espine and Jeand[1]. The patient was a girl 11 months old, who was inoculated on both arms, with lymph that was also employed

[1] Archiv für Kinderheilkunde, B. xxvi, H. 5, 6, p. 367.

in the vaccination of two other children in whom the vaccinia pursued a normal course. In the child in question moderate fever set in four days after the operation, and in a day or two later, simultaneously with the pustules on the arms, several similar ones appeared on the trunk and face. After another day the eruption became much more profuse, while the temperature remained slightly elevated. Gradually the eruption extended over the entire body, although the constitutional manifestations remained mild. The exanthem everywhere presented the typical appearance of vaccinia, and subsided in the course of four or five days, although subsequently a few new vesicles made their appearance. The inoculated points on the arm pursued the ordinary course of vaccination. A calf was inoculated with some of the lymph from pustules on the leg and foot on the eighth and ninth days, with a positive result. With the contents of the pustules thus developed a second calf was inoculated, also with positive results. An attempt later to inoculate the first calf with active vaccinal lymph proved unsuccessful. The case was believed to be one of generalized vaccinia rather than one of mild varioloid, because the eruption failed to pursue the regular course of variola; and the general symptoms of this condition were completely wanting; while the possibility of direct or indirect transmission of smallpox could be entirely excluded. There was, further, no conveyance of variola to any one in the neighborhood of the child, although many of these had not been vaccinated since childhood. Finally, the positive results of inoculation of the calves rendered certain the conclusion that the condition was one of vaccinia. The occurrence of the condition is explained as a reversion to an original type, as a result of which a non-contagious exanthem is made to occupy a position intermediate between the localized eruption of cow-pox and the contagious generalized eruption of variola.

PHASES OF "CHRISTIAN SCIENCE."

Under the new medical act "Christian Scientist healers," etc., are, for the first time, given a legal status in Illinois. The act contains the following clause explicitly prohibiting interference with them: "This act shall not apply to any person who ministers to or treats the sick or suffering by mental or spiritual means without drugs or material remedy." Under this act the "Christian Scientist" has full right to practice without supervision or control by any authorities. Whatever may be said about this backward step in medical legislation, it must be admitted that unrestricted practice of "Christian Science" and faith healing is likely to have some queer developments. One phase, interesting from the veterinary standpoint, has lately occurred in Paterson, N. J. The "Scientist" failed to make a diagnosis in the case of a cow that was in extremis when he arrived. After "three sittings of profound meditation" the cow, however, so completely recovered that she chased the "Scientist" twice around the barnyard, and he was only rescued by a hired man with a pitch-fork. The *Chicago Chronicle,* which from time to time exhibits the usual newspaper iatrophobia against non-advertising physicians, is nevertheless rather skeptical about certain phases of this cure. The "Scientist," it remarks, undoubtedly maintains in common with other professors of his philosophy that matter is non-existent. Why then, it asks, did he rush around the barnyard to escape the cow, which, being matter, was non-existent? Why, moreover, did he treat a non-existent cow? The occurrence suggests that "Christian Scientists" are likely to demonstrate, as did the Paterson healer, that the line of the non-existence of matter has to be drawn at enraged animals, especially since these cannot be "faith cured out of existence. It is to be hoped that "Christian Science" will take to veterinary practice and thus extinguish itself. Unfortunately, however, those who have embraced this cult do not call in "Scientists" to treat their domestic animals, their face or their hair. Another phase of the same subject is illustrated in the way that some of the "Christian Scientist" judges who disgrace the bench deal with the question of mental shock in producing injuries. These, in their decisions, deny the legal right of mental shock to produce such diseases as chorea, while at the same time smuggling into legislative acts clauses favoring "Christian Science," similar to that of the Illinois medical practice act. It is not strange to find the sexual element cropping up in connection with these aberrant religious ideas, the relation between sensual practices and religious delusions among the insane having long been known to alienists. This relation explains the frequent sexual aberrations displayed by many fanatic sects. The prophets, John of Leyden, Knipperdoling and the Oneida community—the original "Christian Scientists"—exhibited these very strongly in their acts. This tendency has long been recognized as occurring among people of average normal condition by sincerely religious people. Mr. Spurgeon, in a sermon two decades ago, said: "Let us not forget, too, that excess of spirituality is by a strange but certain law, placed next door to sensuality." This phallic phase of religion naturally crops up in "Christian Science" literature. A recent issue of a Chicago medical journal contains a "Christian Science" article on marital hygiene, by one Ida E. Chaddock, which to the phraseology of the "Christian Scientists" joins directions which resemble those given to the priestesses of Aphrodite. It is to be expected that this literature will appear in greater quantities now that "Christian Science," so far as Illinois is concerned, is freed from any restriction.

Medical News.

THE NEW wing of the Tacie Harper Hospital, Long Branch, N. J., was dedicated July 19.

THE *Tri-State Medical Journal and Practitioner* is to be issued under the title of *Inter-State Medical Journal.*

THE Duke of Westminster has presented to the Royal Alexandra Hospital of Rhyl, Wales, the sum of $50,000.

PROFESSOR BRISSAUD has been appointed to the chair of history of medicine and surgery at the Paris Faculty of Medicine.

FIRE in the pathologic laboratory of the Kankakee, (Ill.) Hospital for the Insane, July 20, destroyed many valuable specimens.

DR. J. CARDEN COOPER of Philadelphia, left July 27 for Europe, where he will attend the International Con-

ference for Prophylaxis of Syphilis and Venereal Diseases, at Brussels, in September.

BY THE will of Miss Sue M. Bryson, a sufficient sum has been left the St. Joseph's Hospital of Lancaster, Pa., for the endowment of a free bed for children.

THE NEW French Minister, de Galiffet, mentioned so often in connection with the Dreyfus case, still wears a silver plate in his abdomen to cover a defect caused by a cannon ball at the siege of Puebla.

DR. F. T. STEWART, of the Pennsylvania Hospital, Philadelphia, is quoted as saying that he has recently treated five cases of tetanus by the administration of antitoxin, but in each instance the patient died.

THE WIDOW of a respected citizen of Riga, who died recently, has applied to the court for permission to resume her maiden name on the ground that the husband with whom she had lived for twenty years was a woman.

DR. JUDSON DALAND, Philadelphia, is in California. Before returning home it is his intention to visit the Yellowstone National Park, and he will read a paper before the Rocky Mountain Medical Society, in Salt Lake City, July 25.

THE SUGGESTION is offered, in a Paris exchange, that physicians in cities and small towns might obtain change of air and scene with the minimum of loss and expense, by merely exchanging their practices, offices, etc., for a short while.

LONDON cablegrams of July 22 announce that the bubonic plague has spread from Hongkong and Mauritius to Reunion. There were thirty-six cases at Mauritius during the week ending July 20, of which twenty-nine resulted fatally.

BY THE will of the late Robert L. Rea, Chicago, Northwestern University, Evanston, Ill., receives $10,000 for endowment of the "Rea Professorship of Anatomy." The College of Physicians and Surgeons, Chicago, receives $5,000.

THE PASTOR of St. James Methodist Episcopal Church, the Rev. Dr. Robert McIntyre, has announced that a hospital for incurable consumptives will be erected by a citizen of Chicago at an early date. The name of the donor has not been made public.

THE ALVARENGA PRIZE of the College of Physicians of Philadelphia, amounting to $180, for the year of 1899 has been awarded to Dr. Robert L. Randolph of Baltimore, for an essay entitled "The Regeneration of the Crystalline Lens: an Experimental Study."

DOYEN, the "champagne millionaire," "lightning operator" of Paris, received quite an ovation from the students at Kiel recently, when he exhibited his kinematographic reproductions of his operations at von Esmarch's clinic, at the request of Emperor William.

FIFTEEN druggists, confectioners and manufacturers of "fruit syrups" have been arraigned in New York City charged with selling impure syrups for soda water and ice cream. The analysis showed no fruit juice present and that the coloring was produced by aniline dyes.

A LEMBERG, Austria, paper recently reported that a portrait of the late Empress, in the possession of a certain citizen for many years, had commenced to drip blood from between the glass and the frame. A local scientist attributes it to the "reddish secretions of the bacillus prodigiosus."

ACCORDING to the *British Medical Journal*, the members of the Continental Anglo-American Medical Association will follow the precedent set last year in Edinburgh, and lunch together during the meeting of the British Medical Association next week. The chair will be occupied by Prof. Osler of Baltimore.

A FATAL case of hydrophobia in a child 3 years of age is reported from Columbia, Mo. The child was bitten June 12, and the first symptoms were noticed July 10, death occurring a few days later. Such cases are of interest as occurring at too early an age to possess the hysteric element claimed by some to be the basis of the disorder.

A CIRCULAR has been issued by the physicians of Finisterre, the French province most ravaged by alcoholism, emphasizing its pernicious consequences to public and private health and national interests, and announcing that they can no longer remain impassive spectators of the catastrophe. The effect of their crusade is already extending beyond their local influence.

DR. G. ALDER BLUMER, superintendent of the New York State Lunatic Asylum at Utica, has been elected superintendent of the Butler Hospital, Providence, R. I., and will assume his new duties early in September. Dr. Blumer has made himself an enviable reputation during his nineteen years' service at Utica, and the trustees of the Butler Hospital are to be congratulated on their having secured his services.

HERMAN, the inventor of the postal card, is now urging the Austrian authorities to introduce the "telegram card," or "telegram letter," and the proposition is under consideration. The special card to be sold for the purpose is deposited in the mail as usual, but when received at the postoffice, the contents are to be immediately telegraphed or telephoned to the addressee. Such a card might prove a desirable means of communication between patients and doctors in many instances.

DR. LASSALLETTE of Pau was condemned last year to two months' imprisonment for "homicide par imprudence," as a pair of forceps was found in the abdomen of a woman who had died a few hours after he had operated on her for removal of a large fibroma. After completing his term he produced evidence that the patient's death was not due to the fact cited, but that she had been poisoned with nux vomica. The case is now in the hands of the experts according to the *Gaz. Med. de Paris* July 8.

THE average monthly death-rate in Santiago, Cuba, under the Spanish régime is said to have been 250, but under improved sanitary measures carried out since the occupation by American troops, the mortality has decreased to 112 per month and is constantly growing less, notwithstanding that a small epidemic of yellow fever has affected that district. Previous to July 19 no new case of yellow fever had been reported for a period of five days.

UNDER DATE of May 18, 1899, Manila Bay, P. I., Lieutenant and Asst.-Surgeon Eugene H. Hartnett, U. S. A., reported an outbreak of measles among the troops on the transport *Warren*, on her passage from San Francisco, Cal., to Manila, P. I. Five cases were developed before reaching the Hawaiian Islands. These were left at Honolulu. After leaving this port fifty-five cases were treated, although every effort was made to restrict the spread of the disease by isolation and disinfection. No fatality occurred from the disease.

IT IS a curious instance of the irony of fate that the electric exposition at Como, in honor of Volta's discovery of the electric pile, should have been destroyed by an insubordinate electric spark. The loss is com-

plete and includes the original models of all machines and instruments invented by Italians, as well as the priceless Volta relics, his machines, letters, etc., and specimens of all the latest and most improved appliances of electricity to medicine, surgery, and every art and industry.

ONE OF the last acts of the late Czarevitch, as we learn from the newspapers, was to publish a set of rules for consumptives. Himself a victim, he followed these rules most rigidly; the fear of imparting his disease became almost a mania with him, and none of his attendants were allowed to be on duty with him over two hours a day; the rest of the time they were obliged to spend looking after their health. He had collected, it is said, an extensive library on the subject of tuberculosis, which seems to have been the subject that most occupied his attention.

DR. L. L. SEAMAN, of New York City, has offered $100 in gold or a medal of equal value, as the successful competitor may select, for the best thesis on "The Ideal Ration for an Army in the Tropics." The competition is under the direction of the Military Service Institution of the United States., which has its headquarters on Gouverneur's Island, New York Harbor. Col. Weston, acting commissary general; Lieut.-Col. Charles Smart, deputy surgeon-general, and Lieut-Col. Wm. E. Dougherty, 7th U. S. Infantry, have been asked to act as a board of awards. The theses must be submitted by March 1, 1900.

ACCORDING to report the officials of the New Jersey experiment station have for a number of years had under observation several cows in which reaction had been given with tuberculin and were pronounced tuberculous. These animals found to be infected were isolated and have been closely watched, and from time to time examinations of the milk have been made but no tubercule bacilli have been found. The statement has also been made that, because no bacilli have so far been found, it does not absolutely prove that bacilli have never been present, and further that at this time the apparatus used is not as accurate as it is hoped to make it at some future day.

PHILADELPHIA is making an earnest effort to determine the extent to which adulteration of foods is being practiced in that city. Not only the retailer, but the wholesale dealer as well, will come in for his share in this investigation. The grand jury for July has five bills of indictment charging defendants with violation of the food laws, most of them being dealers in oleomargarin. Since January fifty-two persons have been indicted for selling oleomargarin for butter. During the same period twelve have been charged with selling adulterated milk. Five true bills have been found against retailers charging them with selling coffee adulterated with chicory.

THE ANTIVACCINATIONISTS will find food for thought if they will investigate the latest reports concerning smallpox in Germany during the last decade and a half. For the ten years previous to 1895 the average deathrate from smallpox was 116, the greater of the total number occurring in the early period of the decade. In 1895 there were 27 deaths, in 1896, 10, and in 1897, 5. In Germany the law requires vaccination and revaccination, and the law is carried out. In no other country is the value of vaccination more evident than in Germany, and in no other country is the preventive method more thoroughly carried out.

SINCE the large number of deaths from tetanus produced by injuries from the use of toy pistols, the coroner of Philadelphia has been looking up the law as it applies to the sale of firearms in general. Several additional deaths from tetanus have occurred in the city during the past week and that has probably given a greater impetus to the crusade against these firearms. An act of the Assembly, passed June 11, 1881, makes it a misdemeanor to sell firearms or any explosive substance to boys under the age of 16 years, and the offense is punishable by a fine not exceeding $300. Under this act a dealer in toy pistols has been arrested and after being censured severely, by the coroner, is now held to await the action of the district attorney.

THE ENTIRE sewage of Paris is used for irrigating and fertilizing the formerly partly barren tracts of land at Achères and Pierrelay, where the cabbages, etc., now grow in rank profusion. The last great intercepting sewer emptying into the Seine was formally closed with appropriate ceremonies, July 8, and the black flood diverted to the pumping works where it is raised to a height of 35 meters and then distributed, the water finally draining clear and odorless into the river. In the addresses delivered a glowing tribute was paid to several physicians, Bourneville, Cornil, Proust and others, who in the Senate Chamber and City Hall so materially forwarded the great work now brought to completion.

THE CRUPPI bill to regulate medical expert testimony, already mentioned in the JOURNAL, has been passed by the French lower house, but so enlarged in its scope that it now applies to all expert testimony in all criminal cases. It provides for a list of experts to be prepared each year, by the authorities, to include among others all the various faculties of medicine, pharmacy, and sciences, and physicians, surgeons and pharmacists connected with hospitals and asylums, classified according to specialties. From this list the judge appoints one or more experts and the accused an equal number, who are to study and confer together and in case of impossibility to agree, to select a third, or he can be selected by the court. The expenses are to be included in the court costs. The House passed a resolution independent of the bill urging that more attention be paid to legal medicine in the medical colleges.

SPONTANEOUS GANGRENE IN CHILDHOOD.—It is not always possible to ascertain the causes that lead to the changes in the vessels that are responsible for the development of spontaneous gangrene. In those of mature and advanced years vascular degeneration may be considered as a more or less physiologic process, constituting a part of the process of senescence. Pathologically it may occur also earlier in life. Under such circumstances we naturally look for an infective or toxic origin. The condition is obviously rare in early life, and when it does occur one is naturally inclined to attach greater importance to hereditary predisposition, alone or in conjunction with acute infectious disease, than to any other possible single cause. A unique case of spontaneous gangrene occurring in a child a year and a half old, has been placed on record by Goebel (*Deutsches Archiv. f. Klin. Med.*, 63 B., 1. und 2 H. p. 94). The parents were healthy; two children were well, and one had died of convulsions during dentition. The patient had been nourished artificially, had its first tooth at four months, walked at fifteen months, and had off and on suffered from catarrh of the respiratory passages, of which there had been an aggravation four weeks before coming under observation. Fever set in, with severe

cough, prostration and anorexia. After eight days the child dragged the left leg, although it presented no physical abnormity. There was no knowledge of traumatism. After another week the tonsils became enlarged, and a rash appeared over the whole body. The child was not severely ill, was free from vomiting, and had but slight fever. The eruption disappeared in the course of a few days, although the condition of the leg meanwhile underwent no change. The child, however, became peevish, restless, and sleepless, with mild delirium at night. It coughed a good deal, ate scarcely anything, asked only for water and lost perceptibly in flesh. Finally the extremity became marbled in appearance, strikingly cold, slightly swollen and within a short time entirely blue. Examination of the blood disclosed a slight increase in the number of leucocytes. The spleen was small, and the urine contained neither albumin nor sugar. A diagnosis of occlusion of the anterior tibial artery was made, and this was confirmed by the formation of a line of demarcation in the upper third of the leg. The parents refused to permit surgical intervention. In the course of a few days more signs of pneumonia made their appearance, together with albumin and tube-casts in the urine. The throat became red and edematous, and a mucoid deposit formed on the tonsils. Death finally took place amid septic symptoms. The autopsy disclosed necrotic destruction of both tonsils and catarrhal pneumonia, especially in the left upper lobe, with purulent bronchitis. The heart was dilated, its musculature firm, its cavities and valves free from thrombi and deposits. The spleen was enlarged, the liver pale, the kidneys cloudy. The aorta from the origin of the renal arteries was occluded by a thrombus, which on the left side extended to the division of the popliteal artery and projected into the anterior and posterior tibials. On the right the clot extended to the origin of the deep femoral artery. The veins were empty. The thrombus was brownish-red in color, without lamination, and nowhere presented appearances suggestive of an embolic origin. The only abnormality discovered from histologic examination was a local endarteritis at the bifurcation of the popliteal artery.

Therapeutics.

Chronic Catarrhal Gastritis.

℞. Quinin sulph.....gr. xxx | 1|95
Strychnin sulph.....gr. ss | 032
Acid hydrochlor. dil.....℥iiss | 9|75
Tinct. cardamon. comp.....℥iiss | 9|75
Aqua, q. s. ad.....℥iv | 124|40
M. and filter. Sig. One teaspoonful in water after meals.

—*Wm. Pepper.*

℞. Tinct. nucis vom.....℥ii | 7|80
Resorcin resublim.....℥ii | 7|80
Tinct. gentian.....℥v | 19|50
Syrup simplex, q. s. ad.....℥v | 155|50
M. Sig. Tablespoonful every two or three hours.

℞. Tinct. nucis vom.....℥i | 3|90
Decoct. condurango.....℥iv | 124|40
M. Sig. Tablespoonful half an hour before meals.

—*Ewald.*

To dissolve the mucus and destroy microbes of fermentation, lavage and

℞. Hydrozone .....℥i | 3|90
Aqua destil., q. s. ad.....℥iv | 124|40
M. Sig. Drink while stomach is empty once daily.

The hydrozone may at first produce acid sensations in the stomach, but as the irritated gastric surface improves in tone under its influence this will pass away and sensitiveness to its action will subside. When necessary the amount of hydrozone may be reduced until the stomach becomes more tolerant to it.

—*H. T. Webster.*

G. Hayem prescribes in the hyperpeptic form, with abundant secretion without dilatation, a course of Carlsbad water, unless there be heart disease or phthisis or the subject be feeble or aged. A formula for an artificial Carlsbad, for home use, is the following:

℞. Sodii sulph.....gr. xl | 2|60
Sodii bicarb.....gr. xl | 2|60
Sodii chlorid.....gr. xvi | 1|04
Aqua destil.....℥xxxiii | 1026|30
Sterilize or consume while fresh.

GASTRIC NEUROSIS.

℞. Morphin hydrochlor.....gr. iii | |20
Cocain hydrochlor.....gr. v | |32
Tinct. belladonna.....℥i | 3|90
Aqua amygd. amar.....℥v | 19|50
M. Sig. Ten to fifteen drops (.5- .75 gm.) every hour. When pains are very severe, three doses of ten drops (.5 gm.) each within an hour.

℞. Codein phosph.....gr. ¼ | |016
Bismuthi subnit.....gr. v | |32
Sacchari lact.....gr. iii | |20
M. Sig. A dose, every two hours.

—*Ewald.*

Treatment of Hepatic Insufficiency.

According to the *Medical Review of Reviews*, Gilbert and Weil have recently studied two cases of "lesser diabetes" in which there were present an enlarged liver, digestive glycosuria, urobilinuria and hepoazoturia, together with indicanuria, a picture suggestive of hepatic insufficiency. All these symptoms disappeared under the administration of hepatic extract. In another case a consumptive with enlarged liver had no other symptom than indicanuria which was persistent. Under the use of hepatic extract this symptom disappeared to return when the extract was discontinued.

Local Treatment of Pneumonia in Children.

The *Medical News*, May 20, refers to Chase's observations on the efficiency of external applications in the treatment of pneumonia in children. The forty-five patients studied lived in tenement-houses, in unfavorable surroundings. All but two were over a year old. Of thirty-nine who had lobar pneumonia, thirty-eight recovered. Six had bronchopneumonia, and of these four recovered. The effect of poultices was especially noted. These were made light, of flaxseed and cheese cloth, and covered with oiled silk or paraffined paper, and weighed not more than six ounces (186.6 gm.) They were placed on the affected part while the child was in bed, and removed in 30 or 40 minutes. Rarely were more than six or eight applied in twenty-four hours. Observation convinced him that poultices diminish pain, and have a soothing effect, often producing sleep; that they relieve dyspnea and reduce the number of rales; that they are rarely opposed by the children, and by adding to the comfort of the patient they maintain his strength and so facilitate his recovery.

Subacute or Chronic Bronchitis.

The following prescription is recommended by Crinon:

℞. Terpini hydratis.....gr. lxxx | 5|20
Glycerini.
Spiritus ää.....℥iiss | 77|70
Mellis despumat.....℥ii | 62|20
Tinct. vanillæ.....m. lxxv | 4|67
M. Sig. Two to four tablespoonfuls a day.

Treatment of Angina Pectoris.

The best remedy during the attack is the inhalation of amyl nitrite. This should be administered in glass capsules, to be crushed in a handkerchief held to the nose. The beginning dose is four minims (.24 gm.) which must later be increased to eight minims (.48 gm.) If the attack is prolonged, trinitrin should be given per orem or subcutaneously, as in the following formula:

℞. Spts. glonoini (1 per cent.).....gtt. xi | |55
Aqua laurocerasi.....℥iii | 11|70

One or more syringefuls may be injected, or three drops (.15 gm.) of trinitrin in water, increased to six drops (.3 gm.). Between the attacks regulate the diet and forbid alcoholic drinks. White meats, eggs, vegetables, and as drink, milk, mineral water, and tea should form the chief diet. For medication digitalis, caffein, and especially the iodin preparations are important. Potassium iodid should be administered for one month, followed by sodium iodid given for two months, as in the following formula:

R.	Potass. iodid	3iiss-3v	9 | 75-19.50
	Ext. thebaicæ	gr. iii	20
	Aqua destil	ʒx	311

M. Sig. Tablespoonful three times a day. Continue course for two to four years.

R.	Sodii iodid	3iss-3iiss	5 | 85-9.75
	Sodii arsenit	gr. i	065
	Aqua destil	3xxxvss	138 | 45

M. Sig. A tablespoonful three times a day.

—*Huguenin.*

Dysmenorrhea.

R.	Antipyrin	3iiss	9 | 75
	Ammonii bromid.		
	Potassii bromid, āā	3i¼	4 | 87
	Ext. viburni prunifol	3v	19 | 50
	Spts. vini gallici.		
	Syrup aurantii, āā	ʒx	39
	Aqua destil	ʒxxss	79 | 95

M. Sig. A teaspoonful four or five times daily.

—*Cushing and Cumston.*

DYSMENORRHEA AND OVARIAN NEURALGIA.

R.	Ext. belladonna.		
	Ext. stramonii, āā	gr. 1/5	012
	Ext. hyoscyami	gr. ¼	016
	Quin. sulph	gr. ss	03

M. Ft. pil No. ii. Sig. One repeated in two or three hours if necessary.

—*Steer.*

R.	Tinct. cannabis ind	m. x	60
	Syrup chloral hydrate (P.B.)	m. xx	1 | 20
	Glycerin	ʒi	3 | 90
	Aqua camph., q. s. ad	ʒi	31 | 10

M. Sig. One dose to be taken at the commencement of pain. A second dose may be given in three hours, but no more until the next day.

—*Bedford Fenwick.*

For nervousness and general malaise, especially at the period of the menopause.

R.	Ammonii bromid	3ii	7 | 80
	Sodii bromid	3iv	15 | 60
	Spts. ammon. aromat	3vi	23 | 40
	Aqua camph	ʒvi	186 | 60

M. Sig. Tablespoonful every four hours.

—*Parvin.*

Vaginismus.

R.	Zinci valerianati	gr. 5/6	05
	Quinin valerianat	gr. iss	095
	Ext. opii.		
	Ext. belladonna, āā	gr. 1/6	01

M. Ft. pil No. i. Sig. From three to six pills daily.

Locally:

	Ext. krameria	gr. iss	095
	Morphin hydrochlor	gr. ⅛	008
	Ol. theobrom	3i	3 | 90

Ft. suppos. vaginal.

—*Touvenaint.*

Sexual Atony in Women.

R.	Ext. cannabis ind.		
	Ext. nucis vom., āā	gr. xxx	1 | 95
	Ext. aloes aq	gr. vii	46

M. Div. in pil No. c. Sig. One three times a day.

Taste of Potassium Iodid Disguised.

Dr. F. E. Ferrea of San Francisco, Cal., writes: "It gives me pleasure to forward you a formula for the administration of potassium iodid. I have given such a mixture to many of my medical friends who are more than pleased with it. One teaspoonful readily disguises the taste of ten grains of the iodid:

MIXTURE YERBINUS COMPOUND.

R.	Saccharin	3iii	11 | 70
	Fl. ext. orange peel	3ii	7 | 80
	Fl. ext. yerba santa	3ii	7 | 80
	Fl. ext. ginger	ʒiv	124 | 40
	Aqua, ad	Oiv	1920

Mix. Add ʒi (31.1 gm.) $MgCO_3$; shake; let it stand for twenty-four hours; filter. Color red with ʒi (31.1 gm.) fl. ext. cudbear, if desired.

Book Notices.

Electro-Haemostasis in Operative Surgery. By ALEXANDER J. J. SKENE, M.D., LL.D., professor of gynecology in the Long Island College Hospital, etc. New York: D. Appleton, 1899.

This work is a monographic statement of the construction and uses of the author's electric hemostatic forceps, which appears to be a very valuable addition to the surgeon's armamentarium. It is profusely illustrated, the descriptions are clear and readable, and the author's success with his method appears to have been very satisfactory in quite a wide range of operations. The cuts, though evidently made from elaborate drawings, are largely schematic, and, therefore, the more intelligible and illustrative of the text. The concluding chapters are devoted to the description of the author's approved methods of surgical antisepsis and asepsis, including hospital construction and disinfection methods.

Albuminuria and Bright's Disease. By NESTOR TIRARD, M.D., F.R.C.P., physician to King's College Hospital, etc. With original illustrations. London: Smith, Elder & Co., 1899.

This latest addition to the text-books on kidney disease and albuminuria seems to have the merit of being a clear, practical monograph of the subject, especially in its purely medical aspects, as, while it includes also the kidney affections that sometimes call for surgical measures, these are left for the student to refer to in especially surgical works. It is also brief in its mention of the usual urine tests, and, as a text-book, perhaps more might have been said as to these. In other respects it seems a valuable work both for the student and the practitioner, and one that can be heartily recommended.

BOOKS AND PAMPHLETS RECEIVED.

Acknowledgement of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review as dictated by their merits, or in the interests of our readers.

Manual of Bacteriology. By Robert Muir, M.A., M.D., F.R.C.P.Ed., and James Ritchie, M.A., M.D., B.Sc. Second edition. Illustrated. 8vo. Cloth. Pp. 564. Price, $3.25. Edinburg and London: Young J. Pentland. New York: The Macmillan Co. 1899.

A System of Medicine by Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.S.A. Vol vi. Octavo. Cloth Pp. 944. Price, $5.00. New York: The Macmillan Co. 1899.

Mechanics of Surgery, Comprising Detailed Descriptions, Illustrations and Lists of the Instruments, Appliances and Furniture Necessary in Modern Surgical Art. By Charles Truax. Large Octavo. Cloth. Pp. 1024. Chicago: 1899.

Pulmonary Tuberculosis. Its Modern Prophylaxis and the Treatment in Special Institutions and at Home. Alvarenga Prize Essay of the College of Physicians of Philadelphia for the year 1898, revised and enlarged. By S. A. Knopf, M.D. (Paris and Bellevue, N. Y.), physician to the Lung Department of the New York Throat and Nose Hospital; former assistant physician to Professor Dettweiler, Falkenstein Sanatorium, Germany; vice-president of the Pennsylvania Society for the Prevention of Tuberculosis; Fellow of the American Academy of Medicine; laureate of the Academy of Medicine of Paris, etc. With descriptions and illustrations of the most

important Sanatoria of Europe, the United States, and Canada. Octavo. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co.

Principal Poisonous Plants of the United States. 8vo. Cloth. Pp. 60. Published by the Illinois State Board of Health. 1899.

Transactions of Southern Surgical and Gynecological Association. Vol. xi. Eleventh Session, held at Memphis, Tenn. Octavo. Cloth. Pp. 516. Published by the Association. 1899.

Pyorrhea Alveolaris and Its Relations to General Medicine. By John Fitzgerald, L.D.S. Small Octavo. Cloth. Pp. 62. London: The Medical Publishing Co., Ltd.

Mineral Waters of United States and their Therapeutic Uses. With an account of the various Mineral Spring localities, Means of Access, etc. By James K. Crook, A.M., M.D., adjunct professor of clinical medicine and physical diagnosis at the New York Post-Graduate Medical School, etc. In one octavo volume of 580 pages. Cloth, $3.50, net. Philadelphia and New York: Lea Brothers & Co. 1899.

Deaths and Obituaries.

W. N. Alsop, M.D., Shaw, Miss., formerly of Louisville, Ky., was called to see a patient at Cleveland, Miss., July 12, and there murdered....S. H. Boyd, M.D., Tolu, Ky., was thrown from a cart and instantly killed July 1....Joshua A. Brown, M.D., McConnellsville, Ohio, died July 7, aged 85 years.... Clarence Chapman, M.D., Medina, N. Y., died July 8, aged 84 years....Byron S. Coleman, M.D., Rochester, N. Y., July 15, aged 38 years....A. J. Davis, M.D., Pittsburg, Pa., July 19, aged 73 years....S. N. Guice, M.D., Meridian, Miss., July 7, aged 60 years—John M. O'Byrne, M.D., Ocean View, Cal., July 10, aged 39 years....David Rosenthal, M.D., Chicago, July 18, aged 70 years....Charles J. Siglinger, M.D., Philadelphia, July 12....John T. Stafford, M.D., San Francisco, Cal., July 3, aged 30 years....William R. Wood, M.D., Scotland Neck, N. C., formerly superintendent of the insane asylum at Raleigh, July 12, aged 75 years....Burrows Burdick, M.D., Stoughton, Wis., June 30, aged 76 years.

HENRY TUBBS, M.D., Kirkwood, Ill., ex-state senator, president of the First National Bank of Kirkwood, First National Bank of Alexis and National Bank of Monmouth, died July 16, after a brief illness.

PAUL JONES, M.D., who for several years has been connected with the department of biology in Vanderbilt University, Nashville, Tenn., was drowned at Wood's Holl, Mass., where he was doing special work in biology, July 1. He was 31 years of age.

C. W. CRAM, M.D., Davenport, Iowa, died July 13, aged 65 years. In 1857 he entered Starling Medical College, and later served as house surgeon of the hospital at the Ohio State Penitentiary for several years, afterward becoming superintendent of the hospital.

GEORGE W. BABCOCK, M.D., Chelsea, Mass., died July 14, aged 84 years. He was one of the founders of the Massachusetts Society of Medical Examiners.

KATHARYN N. NORTHRUP, M.D., Women's Medical College, Philadelphia, 1893, formerly of the Warren (Pa.) Asylum, and for the past three years resident physician of the South Mountain State Insane Asylum, died in Reading, Pa., July 15.

RUSSELL STURGIS, M.D., Harvard, 1881, of Boston; died there July 18. He was a son of Major Russell A. Sturgis and a grandson of the Russell Sturgis of Baring Brothers, London.

JAMES S. GEARY, M.D., Bellevue, 1892, coroner's physician Borough of the Bronx, New York city, died in Moot Haven, N. Y., July 18, aged 30 years.

CYRUS N. LAWRENCE, M.D., Vermont Medical College, Woodstock, Vt. (now extinct), 1850, died suddenly July 18, at a sanitarium in Jamaica Plains, Mass. He was mustered in as surgeon of the Tenth Massachusetts, in June, 1861, and was in charge of the hospital establishment at Gettysburg after the battle. Afterward he was transferred to the South Street Hospital, Philadelphia, in 1863, and in 1864 became medical inspector of the First Army Corps.

CHARLES HOWARD HILL, M.D., Philadelphia, died July 18, aged 85 years. Dr. Hill was a graduate of the Jefferson Medical College, and was in active practice for a period of nearly sixty years. In early life he took considerable interest in politics and was at one time a member of the state legislature.

OTIS B. BENBROOK, M.D., formerly of Natchez, Miss, died July 14, aged 29 years. The Doctor received his degree in medicine from Tulane University, New Orleans, in 1893, returning to Natchez, where he was connected with the hospital for some years. In 1897 he removed to St. Joseph, La.

Miscellany.

Systolic Mitral Murmurs: Correction—In Dr. Horace D. Arnold's article on this subject in the JOURNAL of July 15, on page 143, line 13, column 1, read: "We can not find a dividing line between the so-called anemic murmurs and the mitral murmurs."

Hernia of the Diaphragm.—There are 433 cases of hernia of the diaphragm on record, but seldom of such extent as the case of a new-born male infant who showed no external indications of the condition. The left pleural cavity contained, in a hernial sac, almost the entire contents of the abdomen, with the heart and large thymus pushed entirely over to the right.—*Wien. Klin. Woch.*, 24.

Traumatic Aural Affections.—Radzich reports several instructive cases which emphasize the importance of examining the ears in case of traumatic injury to the body. Symptoms of a traumatic lesion of the inner ear are chronic hyperemia of the deeper segment of the meatus externus and of the tympanum. The temperature-curve is also an indication in catarrhal otitis with a subacute course.—*St. Petersburg Med. Woch.*, July 1.

Philadelphia Mortality Statistics.—The number of deaths for the week just closed was 510, an increase of 28 over last week and a decrease of 13 over the corresponding week of last year; 211 occurred in children under the age of 5 years. The following were the principal causes of death: apoplexy, 11; nephritis, 26; cancer, 17; cholera infantum, 73; tuberculosis, 69; diabetes, 2; heart disease, 24; pneumonia, 17; appendicitis, 4; suicide, 1; sunstroke, 3; tetanus, 7.

Chronic Ankylosis of Spine.—N. Schatalow describes three cases of this rare affection. He notes that the pains disappear when reclining and are more intense when the patient moves about. He considers these pains due to the compression of the nerve roots as well as the affections of the bones. This compression explains the other nerve symptoms noticed. The affection begins gradually and may be due, he suggests, to a congenitally defective development of some segments of the connective tissue and skeleton, with premature sclerosis.—St. *Petersburg Med. Woch.*, July 1.

Specific Toxic Properties of Tuberculin Acid.—Ruppel isolated from the tubercle bacillus a specific nuclein acid, and Behring announces that this acid alone is fully as effective, to say the least, as any other preparation yet produced for the treatment of tuberculosis. It also retains its specific properties much longer. With the help of this tuberculin acid the degree of toxicity of any tuberculin product can be regulated as desired. His communication in the *Berlin Klin. Woch.*, No. 25, describes his methods of testing, on animals, the specific

toxicity of preparations of tuberculin, for which he considers cattle better adapted than goats.

Parishes Must Pay for Keeley Cure.—The supreme court of Louisiana holds that article 202 of the constitution of 1879, while properly construed to mean that the taxing power was to be exercised by the general assembly for state purposes, by parishes for parish purposes, and by municipal corporations for the purpose of such corporations, is also to be construed with article 163 of the same constitution, which provides that "the general assembly shall make it obligatory upon each parish to support all infirm, sick and disabled paupers residing within its limits," etc., and, when so construed, did not affect the power of the general assembly, by the adoption of Act No. 157 of the Acts of 1894, to require the parishes to pay the expense of treatment at the Keeley-Cure Institute of persons contemplated by said act, and as therein provided. Moreover, it holds that the plaintiff, in Webster vs. Police Jury of Parish of Rapides, had the right, being a poor man, etc., to place his brother in the institute for treatment, and to look to the parish to pay the bill; and if, as between himself and the institute, and in order that the purpose of the law might not be defeated, he borrowed the money and paid the fee required by the institute in advance, he still had the right to look to the parish to pay the bill.

Hydrophobia and the Pasteur Treatment.—The Chicago Pasteur Institute gives a summary of the results of the preventive inoculations against hydrophobia attained since its inauguration, July 2, 1890. During this time 780 patients received the antihydrophobic treatment. Of these 709 were bitten by dogs, 29 by cats, 26 by horses, 7 by skunks, 5 by wolves, 2 by cows, 1 by a calf, 1 by a rat, 1 by a mule, 1 by a pig, and 3 by hydrophobic human beings; 377 persons received severe and multiple lacerated bites on the hands and wrists, 92 on the head and face, 110 on the arms, 173 on the legs and thighs, and 28 on the trunk. Following the rule of Pasteur, the patients treated have been classified as follows: 1. Persons bitten by animals recognized and ascertained to be rabid by the test experiment made in the laboratory or by the death of other persons or animals bitten by the same animal; of this class 268 were treated. 2. Persons bitten by animals recognized to be rabid by the symptoms of the disease shown during life; of this class 358 were treated. 3. Persons bitten by animals strongly suspected to be rabid; of this class 161 were treated. Only three deaths have been reported, thus giving a mortality of 0.38 per cent. Before the discovery of the Pasteur treatment the mortality was as high as 88 per cent. for the bites of the face, 67 for bites of the hands, and 20 to 30 per cent, for those of the limbs and trunk. All patients tolerated the treatment perfectly well. The treatment consists in hypodermic injections of a specially prepared virus of different gradation of strengths for a period of fifteen, eighteen or twenty-one days, according to the severity of the case. The method used is identical with that used in Paris.

Army Medical News from Manila, P. I.—Reports from Chief Surgeon Henry F. Hoyt, Second Division, Eighth Army Corps, detailing the movements and engagements of his division during the month of May, 1899, have been received at the surgeon-general's office. An engagement with the insurgents took place May 3, at the Santo Tomas railway station. The troops suffered greatly from heat and thirst, as their canteens became empty early in the day and the water found in the locality was brackish. The wounded were sent to the rear, on hand-cars. Filipino prisoners were made to propel the cars as our own men were so prostrated by the heat. After being cared for at the dressing stations the wounded were immediately sent to Manila by train. On the 24th another engagement took place west of San Fernando. The wounded, including some Filipinos, were treated at the field-hospital and sent to Manila on the same day. The casualties for the month were 6 killed and 52 wounded. On May 25 a division field-hospital was established in San Fernando in five adjoining buildings, Major Guy L. Edie, brigade surgeon volunteers, in charge. The capacity of this hospital is 200 beds. Diarrheal troubles were so greatly on the increase during the month that recommendation was made to regulate and restrict the sale of fruit. Major Hoyt's recommendations for change in the ration to meet the conditions of service in the tropics are that the rice of the field ration should be increased to six ounces. Company commanders should encourage its use and see that the cooks prepare and serve it in palatable form. The canned corned beef of the travel ration has been generally disliked by the troops of this division. In place of it boiled sliced ham or a sausage, three parts beef and one part pork, is recommended. In place of beans a nutritious vegetable soup is proposed. These articles and the tomatoes of the ration should be put up in flat cans, as being more convenient to carry than those of the present shape.

Influence of Borax on Nutrition.—In a recent number of the *Am. Jour. of Physiology*, R. H. Chittenden and William J. Gies of the Sheffield Laboratory of Physiology, Yale University publish the results of their experiments in a study of the influence of borax and boric acid on nutrition, with special reference to proteid metabolism. In view of the wide-spread use in commercial food preparation, of boric acid and borax as a preservative, as well as the general interest recent inquiry into food adulterations has awakened, their conclusions are of special interest. The experiments were conducted on full-grown dogs, whose nitrogenous equilibrum was well determined before the experiments were begun; the animals were suitably caged that all excreta, both liquid and solid, could be collected. During the experimentation the animals were fed on a properly-balanced mixed diet composed of lean beef, cracker-meal, lard and water. Great care and accuracy was resorted to in the preparation and administration of this food, which was served twice daily, the boric acid or borax being usually given with or immediately following the meal, enclosed in a gelatin capsule. Three distinct series of experiments were perfected and carried on. In the first borax was administered, in the second boric acid, while in the third both drugs were used. The conclusions were that the administration of moderate doses of borax, that is, up to five grains per day, even if continued over a long period, does not influence proteid metabolism, nor exert any special influence on general nutritional changes in the economy; under no circumstances does borax tend to increase body weight, or to protect the proteid matter of the tissues. Large doses of borax (5-10 grams daily) directly stimulate proteid metabolism, and, if continued, lead to increased excretion of nitrogen through the urine, also of sulphuric and phosphoric acid. Boric acid, on the other hand, in doses up to 3 grams per day, is without any practical influence on proteid metabolism and on the general nutrition of the body. Borax, in large doses, somewhat retards the assimilation of proteid and fatty foods, the feces are increased in weight, and in both nitrogen and fat. Large doses produce some increase in mucus and diarrhea. Boric acid, contrariwise, in large doses is without such influence.

Right to Appoint Substitute.—A contract in writing for the employment of a county physician provided that he should perform all the duties of health officer for the county, and should also "take care of and give all poor person or persons who may be a proper charge upon the county, giving the same proper medical attention and care, furnishing all medicines, surgical dressings, and appliances," etc. Finally his bill for one quarter was disallowed. During that quarter his wife had been seriously ill for much of the time, so that it was necessary for him to remove her to a city hospital for treatment, and he

himself was quite ill for a number of weeks. To meet this emergency, he had made an arrangement with another reputable physician of the county to attend to all of his practice, both for private individuals and under the contract with the county. Upon this, however, the Board of County Commissioners relied to defeat a recovery of his bill, contending that the contract called for the personal services of the plaintiff, and that he could not substitute another physician for himself, and maintain his claim for compensation against the county. But this contention, the court of appeals of Colorado thinks, was without any force. Under every reasonable construction of the contract, it holds—Appeal of Board of Commissioners of Prowers County vs. Bedell—it did not call for the personal services, in all cases, of the plaintiff (Bedell). All that it required was proper medical attention, medicines, etc., and there was no effort to show that the substitute physician was incompetent or inefficient. Furthermore, even if the contract had specifically called for the personal services of the plaintiff, the court holds that it would be unreasonable to claim that in case of his sickness or temporary absence he could not furnish the services of another physician without forfeiting his contract, provided that such other rendered proper services. Nor does it consider that there was any error in excluding evidence that the board had early in said quarter appointed another physician county physician and health officer, under a similar contract to the above. This, the court of appeals says, was entirely irrelevant to the issues in this case, and had no bearing whatever on it. The only question, it declares, was whether the plaintiff had complied or failed to comply with his contract. Then, the Board contended that this evidence was admissible, because the contract was in part for the services of the plaintiff as health officer, and that under the statute the Board had the power to remove that officer at pleasure. But, assuming this to be true, the court holds that, under the terms of the contract, it would not prevent the recovery by the plaintiff of the compensation agreed on, if he had fulfilled the obligations of his contract, for his services as county physician.

San Francisco.

THE MEDICAL COLLEGES.—Some friction has arisen between the medical department of the State University and Cooper Medical College on the one hand, and the recently incorporated College of Physicians and Surgeons on the other, over the distribution of the wards at the City and County Hospital. The two first named colleges have been on the most friendly footing at the hospital for some years, but the introduction of a new element into the question seems to be a disturbing factor. The superintendent of the hospital, Dr. Sussdorff, states that the representatives of the new college tried to run things with a high hand and decide for themselves, without regard to the Board of Health or the other medical interests, what they would have. Dr. Sussdorff objected and the matter was adjusted by the Board of Health itself, not altogether to the satisfaction of the new college. The College of Physicians and Surgeons is not regarded with great friendliness by the other colleges. The reason the older institutions give for this lack of cordiality is that they do not consider the standard of the newly incorporated school high enough for a modern medical school. The young rival of the older schools has been in existence but three or four years, has lower tuition fees than either of the others, and has already a goodly number of students on its rolls.

SANITARY REGULATIONS OF TROOPS.—Very stringent sanitary regulations have been formulated for the protection of the men of the Oregon regiment who have recently returned from Manila. The camp at the Presidio is to be placed under the direct charge of a regular army surgeon and all precautions taken to guard the men and the other troops camped at that post from introducing any contagion. Strenuous efforts are also being made to protect the returned soldiers from the rigors of the climate, as San Francisco weather is a most decided contrast to that which they have experienced for nearly two years past. Whether the men themselves will aid in the carrying out of the wise orders as to the wearing of overcoats, not riding on the outside of cars, being in bed early, etc., remains to be seen. As yet, however, very little sickness has developed among them, in spite of the fact that since their return the weather has been particularly bad, cold and fog prevailing most of the time.

London.

THE death of Sir William Henry Flower, the past week, has not only deprived English zoölogy of the last of that generation of giants, to which Darwin and Huxley were the standard-bearers—and out of which Alfred Russell Wallace has done his best to read himself, by his amazing relapses into spiritualism and antivivisection—but also the medical profession of one of its former heroes and ornaments. Like Huxley, he was not only trained, but actually began life in practice as a surgeon, in the army instead of, like his great colleague, in the navy. Educated first at University College, London, and later at the Middlesex Hospital, at the age of 23 he went out to the Crimea as assistant-surgeon to the Sixty-third Regiment. Through the entire campaign he served, to the permanent detriment of his health, but with such distinction as to receive two medals at its close. Returning to London he became demonstrator of anatomy and assistant-surgeon to the Middlesex Hospital, and in 1861 was appointed curator of the Hunterian Museum of the Royal College of Surgeons, in which position he won a world-wide reputation, and which he only relinquished to accept the directorship of the Natural History Department of the British Museum, twenty-three years later. This he held for fourteen years, until failing health compelled him to relinquish it, about a year ago. So that, although chiefly famous as a zoölogist, he was intimately connected with medicine throughout the greater part of his life. He was knighted, in recognition of his high scientific attainments, in 1887. Prof. Flower will be longest remembered by his excellent monograph on "The Horse," and his superb works, "Mammals Living and Extinct," and "The Osteology of the Mammalia." Although only 67 years of age he had been in failing health for many years, said to be due to a glycosuria, dating from the strain and hardships of the long Crimean campaign, which was even worse managed from a sanitary point of view than ours at Santiago.

OUR homeopathic brethren in London have been treating themselves to a celebration this week, on the occasion of the fiftieth anniversary of the Homeopathic Hospital. Their position here is much weaker and less prominent than with us. In the first place they all have to pass precisely the same examinations and take the same M.R.C.S. and L.R.C.P. degrees as the regular practitioner, so that the source of a man's diploma is no guide to his "school." Then they, none of them, place the name "homeopathic" on their door-plates or signs, or if they do they are decidedly looked down on by their brethren, so that often only their patients and their regular neighbors know that they are homeopaths. They are a mere corporal's guard in point of numbers, compared with our large and noisy army, although, as their orator on the recent occasion seemed to think, they may have some reason to congratulate themselves on the percentage of the increase in seventy years, from one lone representative in London in 1827. They seem actually proud of the fact that their only hospital had 11,000 patients in 1850, and 19,000 in 1898, an increase of 70 per cent. in forty-eight years. They are vaguely hopeful of a school, in connection with the coming University of London, but if they are content to wait for such a "Greek Kalends" sort of a date as this, regular medicine has little to fear.

THE Royal College of Surgeons is preparing to celebrate its centenary next year by (as noted in the JOURNAL, July 22, p.

235), among other things, an application to the government authorities for a supplemental charter. In this the Council has already determined to ask for power to confer an honorary fellowship on distinguished members of the profession, who are not members of the College, said honorary Fellows not to exceed fifty in number at any one time. Now the Members of the College, who have been clamoring for recognition, and representation on the Council, are taking advantage of this proposed change to urge that a clause giving them this simple and long-refused justice should be added to the new charter. As it stands at present, the election of the Council and entire control of the affairs of the College, its library and museum is in the hands of the Fellows only, and as not more than a small percentage of the Members can afford either the time or the heavy fees required to secure the higher degree, it results in the great majority of those actually forming the College being ruled absolutely and without recourse by a small minority. Indeed, this was the frank intention of the original charter, and the tacit determination of every Council, and of most Fellows until quite recently, and although the Members have been organized for years past, and held enthusiastic and excited meetings every year to demand this right, the Council has always been able to shelter its own selfishness behind the charter and the alleged difficulty of getting any alterations made in it. Now, however, that they are actually proposing a new charter, for some of their own amendments, this excuse will no longer hold water, and it hardly seems possible that the Council can in decency refuse this act of simple justice much longer.

THE charity bazaar, organized by certain ladies of title, in aid of the building fund of Charing Cross Hospital, has proved a great success, netting the handsome sum of $75,000. There is nothing your true Briton will pay more handsomely for than an opportunity to shake hands with, or receive a smile from, a duchess. If he—or she—can only render himself interesting to such an exalted personage for a few minutes, as an object of plunder, he will be happy for a month, and submit to almost any amount of bleeding with Spartan stoicism, nay, even with enthusiasm. We suppose that it is justifiable to play on even the weaknesses of humanity in a good cause, at least so the professional keepers of our ethical ideals, the clergy, have always taught us by their example, but the spectacle of patrician dames hawking pamphlet "souvenirs" about a bazaar, at whatever price, from $3 to $50, which they could inveigle plebeians into paying for them, in the cause of medical education, is not one of which a great and influential profession can be especially proud, or regard as a dignified and appropriate means of securing funds for such a purpose.

THE tropical expedition of the enterprising, young Liverpool school is to start early in August, and consist of Major Donald Ross, Dr. Annett and two student assistants. Its destination is the west coast of Africa—Sierra Leone—and its object the most interesting one, experimenting on the possibility of exterminating the malaria-bearing species of mosquitoes from a certain limited district, or districts, by draining the marshes, covering the pools with petroleum, and other methods recommended. The heads of the expedition will return in October, but it is hoped to leave some of its members to continue the investigation, and that Major Ross will return early in the coming year. This certainly ought to stimulate us to see that similar experiments are carried out this summer and fall, on some of our smaller river-bottoms, or mosquito-infested "summer resorts."

THINGS "do moobe" in London at times and the time-honored fog is having a serious attack made on it at last. Sir William Richmond's vigorous crusade against the smoke nuisance has finally penetrated the judicial skull-cap, and magistrates are beginning to impose really serious fines on all factories, hotels, etc., where their chimneys are complained of, warning them that since smoke-consumers have been shown to be practical, unless they put one in at once they will be fined again on the next complaint. The big Charing Cross and Strand Electric Co. have just been made examples at two of their stations, and the effect will be most salutory.

A CURIOUS illustration of the truth of our quaint western saying, "it's dangerous to be safe," has just been afforded by a fatal bicycle accident at night, due to the excessive brilliancy of the acetylene lamp carried by the machine. A business man, returning home from a meeting at about 10 o'clock in the evening, was run into by a triplet while attempting to cross a broad street, and received a fracture of the skull base, from which he died in a few hours. The accident was seen by several witnesses, who were unanimous in testifying that the unfortunate man was perfectly sober, that the cyclists had given ample warning by sounding their gong, so that he seemed to be fully aware of their coming, and that the accident was entirely due to his becoming confused by the brilliant and dazzling rays of the huge acetylene lamp, so that in trying to spring out of its way he threw himself right in front of it. It is really time that our profession, members of which are aware of the curious confusing effect of the sudden appearance of a brilliant light at night, as illustrated by the way migrating birds dash against lighthouse windows, and moths plunge into lamp and candle flames, amounting to an apparent fascination, should emphatically protest against the absurd and dangerous brilliancy of the newer lamps, which the whim of the cyclist is leading him to affect. They are no addition whatever to his own safety, for the brighter they are the more narrowly they limit his view, and the blacker the shade into which everything outside of their beam is cast, and they are a serious menace to the foot passenger. Indeed, it is seriously to be doubted, and needs testing by careful experiment, whether after all the carrying of a lamp at all is really a protection or a danger to both cyclist and passenger. It certainly is much more difficult to estimate either the position or the rate of approach of a lighted than of an unlighted wheel, for the simple optical reason that the slight overlapping, or non-correspondence of the two retinal images, by which we estimate distance, is entirely eliminated, as we can see nothing of the approaching cycle but a black shadow behind a brilliant luminous point. All who have had experience, either as riders or walkers, in cities like Buffalo, N. Y., which require a bell but not a light, will testify that the streets are both pleasanter and safer, for both parties. The constant stream of fire-fly lights is so annoying and the difficulty of estimating their distance to fifty yards or so, is so great that the nervous strain of crossing a street is nearly trebled, while cyclists are almost unanimous in testifying that obstacles of all sorts are much better seen and more easily avoided without a lamp.

Queries and Minor Notes.

BACTERIOLOGY IN HIGH SCHOOLS.

ATHOL, MASS., July 8, 1899.

To the Editor:—Will you kindly tell me whether there is any book published on bacteriology or germ life that is suitable as a text-book for an elementary course in high schools? Do you know of any high schools where such a course is adopted? What is your opinion of the value of such a course? Yours truly, H. H. B.

ANSWER:—We know of no work especially adapted for high schools and doubt whether there is any general practice of teaching bacteriology in these institutions. So much depends on actual practical knowledge of the technic, that it appears to us doubtful whether any but the most general theoretic knowledge could be imparted in them. There are some small popular works, like Pruden's "Story of the Bacteria," and Conn's "Story of the Germ," but these are mere primers and hardly suitable for systematic instruction except of the most rudimentary kind. It would certainly seem to be a good thing if some general instruction on the subject, even if only rudimentary, could be imparted to the schools.

ACCREDITED MEDICAL COLLEGES.

GONZALES, TEXAS, July 11, 1899.

To the Editor:—Will you kindly send me a list of the accredited reputa-

ble medical colleges in the United States? What do you know of the diploma-mill in Chicago by the name of "The Independent" or "Collegium Independentiæ," or some such style? Respectfully, J. J. F.

ANSWER:—The "Appendix to the Twentieth Annual Report of the Illinois State Board of Health" contains a list of institutions recognized by the board. A copy of the list can perhaps be obtained from the secretary, Dr. J. A. Egan, Springfield, Ill.

The Independent Medical College of Chicago has no standing among reputable institutions, but is exclusively a diploma-mill. It has been proceeded against by the attorney-general, and under the new law it will undoubtedly soon be extinguished.

MEDICAL JOURNALS FOR DONATION.

CAFFEEN, ILL., July 6, 1899.

To the Editor:—I have complete files of the following medical periodicals: Phila. Med. and Surg. Reporter, 1870 to 1898; St. Louis Med. and Surg. Jour. 1867 to 1898; Obstetric Gaz., Cincinnati, first ten years; St. Louis Cour. of Med., 1885 to 1888; Chicago Med. Exam., 1863 to 1875; Va. Med. Semi-Monthly, 1889 to 1895; Compend Med. Sci. 1883-84-85; Annals of Surgery, 1889; "Braithwaites Retrospect," several vols.

These I will denote to any medical library, if any such can be found which will pay freight on them. I have them all properly filed and in good condition. Very truly yours, W. H. C.

The Public Service.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., to and including July 20, 1899:

Charles H. Alden, colonel and asst. surgeon-general, U. S. A., to represent the Medical Department at the meeting of the Association of U. S. Military Surgeons at Kansas City, Mo., in September next.

Carl H. Andersen, acting asst.-surgeon, from Washington, D. C., to San Francisco, Cal., for duty in the Department of California.

Guy G. Bailey, acting asst.-surgeon, from Mackinac Island, Mich., to San Francisco, Cal., for temporary duty in the Department.

William Bowen, captain and asst.-surgeon, Vols., assigned to the 27th Vol. Infantry at Camp Meade, Pa.

Henry H. Bradley, acting asst.-surgeon, orders directing him to report for duty with the 19th Infantry revoked; the revocation subsequently annulled.

George H. Calkins, acting asst.-surgeon, from Tonawanda, N. Y., to San Francisco, Cal., for duty in the Department.

John Ryan Devereux, acting asst.-surgeon, from Fort Hamilton, N. Y., to Camp Meade, Pa., for duty there.

F. A. E. Disney, acting asst.-surgeon, from New York City to Camp Meade, Pa., to accompany the 19th Infantry to Manila, P. I.

Douglas F. Duval, lieutenant and asst.-surgeon, U. S. A., leave of absence granted.

Richard M. Fletcher, acting asst.-surgeon, from Camp Wardner, Idaho, to Fort Harrison, Mont.

John J. Gilhuley, acting asst.-surgeon, from Bridgeport, Conn., to San Francisco, Cal., for duty in the Department.

Richard S. Griswold, lieutenant and asst.-surgeon, Vols., assigned to the 26th Vol. Infantry at Plattsburg Barracks, N. Y.

Thomas D. Ingram, acting asst.-surgeon, sick leave granted.

Frank M. Kemp, lieutenant and asst.-surgeon, U. S. A., now in the Philippine Islands, is relieved from further station at Vancouver Barracks, Wash.

James S. Kennedy, acting asst.-surgeon, from Columbus Barracks, Ohio, to Fort Sam Houston, Texas.

Paul Mazzuri, acting asst.-surgeon, from New Orleans, La., to Division of Cuba.

George P. Peed, lieutenant and asst.-surgeon, Vols., assigned to the 28th Vol. Infantry at Camp Meade, Pa.

Julius L. Powell, major and surgeon, U. S. A., delegated to the meeting of the Association of U. S. Military Surgeons at Kansas City, Mo., in September next.

L. B. Sandall, acting asst.-surgeon, from Au Sable, Mich., to San Francisco, Cal., for duty in the Department.

Paul F. Straub, captain and asst.-surgeon, U. S. A., now on duty in the Philippines, is relieved from further station at Camp Wrangel, Alaska.

George H. Torney, major and surgeon, U. S. A., delegate to the meeting of the Association of U. S. Military Surgeons at Kansas City, Mo., in September next.

Starling S. Wilcox, acting asst.-surgeon, to Columbus Barracks, Ohio.

Marine-Hospital Changes.—Official List of Changes of Station, and Duties of Commissioned and Non-Commissioned Officers of the U.S. Marine-Hospital Service, for the seven days ended July 20, 1899.

Surgeon Preston H. Bailhache, to proceed to New York City for special temporary duty in the purveying depot.

Surgeon C. E. Banks, relieved from duty at Washington, D. C., and detailed as medical purveyor of the service at New York City.

P. A. Surgeon H. D. Geddings, to proceed to New York City for special temporary duty.

P. A. Surgeon M. J. Rosenau, detailed as inspecting quarantine officer for the island of Cuba.

Asst.-Surgeon L. D. Fricks, to proceed to the Brunswick Quarantine Station, Brunswick, Ga., for special temporary duty.

Asst.-Surgeon W. R. McAdam, granted seven days extension of leave of absence.

Asst.-Surgeon T. F. Richardson, relieved from duty at the Immigration Depot, New York City, and directed to proceed to Cienfuegos, Cuba, for temporary duty.

Asst.-Surgeon F. J. Thornbury, to proceed to Point Pleasant, N. J., for special temporary duty.

Sanitary Inspector R. E. L. Burford, granted leave of absence for seven days.

APPOINTMENTS.

Alanson Weeks, of Michigan to be acting asst.-surgeon, U. S. Marine-Hospital Service, for duty at the port of Chicago.

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General of the U. S. Marine-Hospital Service, during the week ended July 22, 1899:

SMALLPOX—UNITED STATES.

California: Oakland, June 3 to 24, 2 cases, 1 death.
Connecticut: Stamford, July 1 case.
District of Columbia: Washington, July 12, last two cases discharged.
Georgia: Montgomery County, July 15, 9 cases.
Kentucky: Louisville, July 6 to 13, 1 case.
Maryland: Baltimore, July 5 to 15, 1 case.
Massachusetts: Boston, July 8 to 15, 1 case.
Texas: Sabine Pass, July 8 to 15, 2 cases.
Washington: Almira, July 3, 9 cases; Spokane, July 1 to 8, 3 cases; Tacoma, July 1 to 8, 2 cases.

SMALLPOX—FOREIGN.

Austria: Hungary, Budapest, June 18 to July 2, 2 cases, 1 death; Vienna, June 24 to July 1, 1 death.
Belgium: Antwerp, June 17 to July 1, 4 cases, 1 death; Ghent, June 27 to July 1, 1 case:
Ecuador: Guayaquil, June 3 to 10, 1 case.
England: London, June 27 to July 1, 1 case.
Egypt: Cairo, June 3 to 17, 4 deaths.
France: Nantes, June 1 to 30, 1 case.
Greece: Athens, June 27 to July 1, 23 cases, 9 deaths.
India: Bombay, June 13 to 29, 6 deaths; Calcutta June 3, to 10, 1 death.
Mexico: Mexico, July 2 to 9, 7 cases, 9 deaths; Nuevo Laredo, July 1 to 8, 2 deaths.
Russia: Moscow, June 10 to 17, 16 cases, 8 deaths; Odessa, June 17 to 24, 2 deaths; St. Petersburg, June 16 to July 1, 34 cases, 7 deaths; Warsaw, June 3 to 24, 4 deaths.
Straits Settlements: Singapore, May 1 to June 10, 17 deaths.
Turkey: Constantinople, July 9 to 19, 4 deaths.

YELLOW FEVER.

Brazil: Bahia, June 17 to July 1, 65 cases, 31 deaths.
Colombia: Barranquilla, June 10 to 24, 2 cases, 2 deaths; Panama, June 27 to July 10, 17 cases, 9 deaths.
Costa Rica: Punta Aranas, July 10, reported.
Cuba: Santiago June 10 to 17, 6 cases, 1 death.
Mexico: Mexico, July 6 to 13, 28 deaths; Vera Cruz, June 1 to July 6, 527 cases, 215 deaths.
San Salvador: San Salvador, July 1, 1 case from Guatemala.

CHOLERA.

India: Bombay, June 13 to 20, 1 death; Calcutta, June 3 to 10, 10 deaths; Madras, June 3 to 9, 1 death.

PLAGUE.

Africa: French Ivory Coast, June 7, 300 deaths.
Egypt: Alexandria, June 20, 42 cases to date, no deaths.
India: Bombay, June 13 to 20, 53 deaths; Calcutta, June 3 to 10, 21 deaths.
Japan: Formosa, Tamsui, May 3 to 24, 318 cases, 225 deaths.
Persia: Bushire, present.
Straits Settlements: Penang, January 1 to June 2, 20 cases, 17 deaths; Singapore, present.

CHANGE OF ADDRESS.

Bradley, C. H., from 9 W. 219 to 2009 4th Av. So., Minneapolis, Minn.
Briggs, C. T., from City Hospt. to 191 Island Av., Minneapolis, Minn.
Curtis, A. B., from Ferry to Maple City, Mich.
Church, W. F., from Austin, Ill., to Delphi, Ind.
Curtis, W. H., from Greencastle to Columbus, Ind.
Dotterweich, F. V., from Cleveland to Ashland, Ohio.
Eastman, J. R., from 315 to 249 N. Pa., Indianapolis, Ind.
Gray, G. A., from Minneapolis, Minn., to Mohawk Blk., Spokane, Wash.
Gallagher, M. L., from 650 Adams to 144 Oakwood Boul., Chicago.
Harrison, L. H., from Fairfield to Canandaigua, Mich.
Hughes, T. D., from Arbroth to Iberia, La.
Hardy, J. A., from Richmond to Kilmonoch, Va.
Johnson, J. Mc., from Louisville, Ky., to Birch Tree, Mo.
Johnson, A. E., from 1744 N. Clark to 349 W. Chicago Av., Chicago.
Knox, J. T., from 415 Broadway to 22 W. 7th, Cincinnati, Ohio.
Kimball, A. L., from Ann Arbor to Racine, Mich.
Kellogg, G. M., from 814 N. Clark to 350 La Salle Av., Chicago.
Kirby, H. W., from Pallid to Airheart Blk., Cripple Creek, Colo.
Lewellen, P. W., from Brookfield, Mo., to Clarinda, Iowa.
Long, R. D., from Wabash Av. and 31st St. to 7100 S. Chicago Av., Chicago.
Landers, A. J., from Louisville, Ky., to Ohatchie, Ala.
McQueeney, F. J., from 33 W. Dedham to 46 Dartmouth St., Boston, Mass.
Miller, W. E., from Omaha, Neb., to Sherman, S. D.
Mather, E., from 22 Adams Av., W., to 319 Woodward Av., Detroit, Mich.
Meade, F. N., from Bristow to Cedar Falls, Iowa.
Norris, M. D., from Baltimore to Eldersburg, Md.
Oppenheimer, H. S., from 49 E. 23d St. to 16 E. 32d, New York City.
Quinn, W. E., from Chicago to Lyndon, Kans.
Rosser, J. C., from Thompson, N. D., to Crookston, Minn.
Ramsey, A., from Richmond to Chestnut Level, Va.
Russell, H. R., from Chicago to Stewartville, Minn.
Roberts, N., from Nevada Bld. to 3712 Williams, Denver, Colo.
Stephenson, W. J., from Winnebago, Neb., to Leech Lake Ind. Agency, Walker, Minn.
Trotter, J. R., from Marshalltown to Melbourne, Iowa.
Toohey, A. F., from Storm Lake, Iowa, to Hubbard, Neb.
White, H. B., from Abbeville to Gueydan, La.
Weeks, A., from Ann Arbor to Allegan, Mich.
Wiggin, T. B., from 4700 Grand Boul. to 690 E. 48th Pl., Chicago.